sheds, pumping-room, smith's shop, &c., are placed at the rear of the laundry. The water-tower is situated over the boiler-house.

On the right-hand side of the entrance corridor are the boys' school arrangements, comprising visiting-room for friends of children, officers' and pupil teachers' mess-room, rooms for the schoolmaster, school-room (126 ft. long, 20 ft. wide, and 14 ft. high), two class-rooms day-room, lavatories, baths, plunging-bath, water-closets, &c. The play-ground (180 ft. by 261 ft.), adjoins the school-room, enclosed by an iron railing on the south and west sides. On the left-hand side of the entrance corridor are the girls' school arrangements similar to the boys' department. The infants' department adjoins the girls' department, and is parallel with the dining-hall.

The girls' industrial training department, includes a sewing-room, cutting-out room, training kitchen and scullery, and a training laundry. In the boys' industrial department, workshops are provided (in which the boys will be instructed in various trades), together with band-rooms and trademasters' dwellings.

Over the boys' and girls' scholastic portion are placed their dormitories.

The dormitories for the infants, providing accommodation for 100, are placed over their scholastic department.

The chapel, a detached building to accommodate 500 children, is approached from the main building by a covered way.

The infirmary is on the pavilion principle. The wards are 12 ft. high and 21 ft. wide. Each bed has 6 ft. allotted in the length of the wards.

There is a separate building, near to the infirmary, so that children suffering from fever, small-pox, and other contagious diseases may be kept as distinct as possible from the general patients. The accommodation provided in the various buildings is as under:—

	Boys, Girls, and Infants.
Main building	700
Infirmary	72
Fever and Small-Pox Wards	24
Reception Wards	22
	818

In the main buildings the apartments are heated by open fireplaces,—"Galton's" and "Gurney's" stoves being employed. The rooms and corridors, together with dormitories, have windows ranged on each side, so as to ensure thorough currents of air permeating the same. The products of combustion and the impure atmosphere are carried away by flues built specially to convey the same from the various apartments.

The staircases, which are numerous, are constructed of fire-proof material; hydrants, with hose attached, and under constant pressure of water, are provided on each landing and in every corridor. Each block of building is completely isolated, and subdivided on "the pavilion principle" (supposed to be its first application to school buildings), so that, irrespective of sanitary considerations, the spread of fire will be in a great measure guarded against.

Messrs. Bull & Sons, of Southampton, are the contractors for the works, at the sum of 43,590*l*.

THE PROPOSED LAW COURTS.

A vote for 21,450*l*. has been taken for laying the foundations. The Commission, at its last sitting, approved the plan (which the Lord Chancellor signed as chairman of the Commission). The new plan is much like the one circulated in Parliament two or three days ago, but with buildings (tower staircases higher than the courts), which will protect the courts from the noise of the Strand. The chief conveniences for every court provided in the plans approved a year or two ago by the Commission, are preserved in the final plan. The general public, the witnesses, the attorneys and officers, the Bar, the jury, and the judges will each have their separate set of accesses to the courts. Each court will have, or be able to have, light on all its four sides, and also roof-lights. The block of courts and the central hall will run from north to south, not from east to west, as in the plan formerly approved. The central hall will be on the level of the Strand, and the courts on the floor above, i.e., on the level of Carey-street, which is about 17 ft. above the level of the Strand. This change in the line of the central hall will probably let the sun shine on every one of the courts some part of every sunny day,—certainly an advantage. The great block of offices will be placed parallel to and adjoining Bell-yard, between it and the courts. There will have to be some offices excluded from the present (or first-erected) block. But there will be ground to the west on which further offices can be erected.

We believe we are correct in saying that the elevations for the approved plan are not yet made.

XYLOTECHNIGRAPHY.

This is the title given by Messrs. Trollope & Sons to an artistic process, which they have patented, for staining pine and other woods for joiners' and timber work, as well as for furniture. It applies to any design, without limit as to number of colours to the same surface, either by elaborate freehand drawing, or the simplest stencil. Although they only claim for the process the character of honest staining, the result has all the appearance and character of inlaid wood. Many attempts have been made in this direction, especially in two colours (ground and pattern only); but we have seen no results equal to the present, and by no previous process could freehand artistic decoration be applied. The specimens they have produced have a transparency and brilliancy that can be obtained by no other means except actual marquetrie, which the work when polished very much resembles. The process is obviously well adapted for doors, shutters, panelling of walls and ceilings, and other joiners' work in private houses, and equally so for the roofs and timber work generally of churches and other public buildings. It is applicable for, and they have already successfully applied it to, a pianoforte case and some cabinets.

KENT ARCHÆOLOGICAL SOCIETY.

The annual dinner took place on Wednesday at the Corn-exchange, Sittingbourne, under the presidency of Earl Amherst, after which a paper was read by the Rev. A. J. Pearman on the two earthworks known as Bayford Castle and Castle Rough, the first being an entrenchment made by Alfred the Great, and the latter the site of a fortification built by the Danes under Hasting in 893. Both places are of the same date. The Rev. F. Hazlewood also read a paper "On Some Paintings lately discovered in Maraden Church."

The members re-assembled on Thursday morning at Sittingbourne, and took train to Queenborough, in the Isle of Sheppy, whence they made an interesting excursion about the island, visiting several ancient churches and the remains of two once famous castles. The isle was in olden times an important grazing-place for sheep, whence it derives its name. Many of the inhabitants used to call these valuable animals "sheps," and a sheepcot was known as a sheppy.

The first object of interest was the site of the ancient Castle of Sheppy, situate at the western mouth of the Swale, very near the present railway station at Queenborough.

On arriving there, the Rev. R. Bingham read a paper "On the History of this Castle."

Several curious mounds, in the middle of flat tracts of marsh-land, were inspected, and it is supposed that they were artificially raised for a refuge for the sheep in the event of floods. They are known as cotterels or cotrels.

After a very pleasant ride through a rich agricultural portion of the island, the party arrived at Minster, which is the largest parish in Sheppy.

The Rev. Dr. Willis, the vicar of the church which was visited, read some extracts relating to the history of the ancient minster or monastery. Minster Church stands on rising ground, about three miles from Sheerness, and commands from its tower a grand view over the Isle of Sheppy, the Nore, the Essex coast, and the hills of Kent.

The members paid short visits to Eastchurch and Shurland Castle, and returned to Sittingbourne much pleased with their day's trip.

A small party of the members visited the ancient town of Milton, which consists of a number of small streets intersecting each other at right angles. The church, which is some distance from the town, and is supposed to have been destroyed by Earl Godwin, stood adjoining the ancient town, which was nearer the Swale than the present one.

A museum of Roman pottery, coins, and other ancient relics, was opened during the two days at the Literary Institute for the inspection of the members.

WORKMEN'S INTERNATIONAL EXHIBITION.

On Tuesday night last a meeting of the exhibitors was held for the purpose of appointing jurors. The chair was occupied by Mr. J. C. Buckmaster, of the Science and Art Department, who, in introducing the business of the evening, said,—Referring to prizes, it was the desire of the Council to carry out the original idea of a Workmen's Exhibition by the awarding of prizes only to men by whom the work exhibited had been actually produced. In former exhibitions the capitalist and employer of labour received the distinction; in this Exhibition it would be their aim as far as possible to give the workman full credit, and the employer and manufacturer would also receive praise and honour through the work of their own men. They must not, therefore, expect or hope to please all parties. To "be just and fear not" would be the safest and wisest policy. There were many things in the Exhibition which might be easily passed over by the jurors, and they would also find many things which would give trouble from the mixed character of the work, and the number of persons employed in its production. Excellent work was sometimes lost on a bad design, and a good design was often wasted on bad work. In several cases they would find the workman his own designer, and in such instances the jurors, he thought, should be as liberal as was fair. There were a few things in the Exhibition intensely ugly, and the jurors must look at these charitably, and it would perhaps be of service to point out where the workman or artist had failed. A man who had never seen anything beautiful was not likely to make anything beautiful. Good work before cheap work, quality before quantity, was the teaching of his apprenticeship, and there never was a time when these admonitions were more necessary. If it had not been for exhibitions, he feared some of our industrial arts, which require the beautiful to be blended with the useful, would have died out or degenerated into a rude barbarism. Look at the wretched houses built all round London, and the still more wretched furniture they contained. To elevate and improve taste, the people must be surrounded with beautiful things, and these need not be expensive; and if this exhibition only inspired in the heart of one workman a desire to produce good work, if would not have been held in vain.

It was resolved that the jury in each class should consist of five persons. Several were afterwards elected.

STATUE OF HER MAJESTY QUEEN VICTORIA, FOR THE ROYAL VICTORIA GARDENS, BOMBAY.

The statue of her Majesty, presented to the inhabitants of Bombay and of India by his Highness Maharaja Khunderao Guicowar Sena Khus-kheyl Shamsher Bahadoor, knight of the most exalted order of the Star of India, and of which we gave an engraving in our last volume,* is now on its way to India. The work, it will be remembered, consists of canopy, statue, plinth, and steps, and is about 45 ft. in height, the whole being executed in marble. The statue is Carrara; the canopy, Sicilian, with light Sienna enrichments.

The figure of the Queen is seated as if in the House of Lords, wearing her robes of state, with the decorations of the order of the Garter and the order of the Star of India, on her head the diadem, and in her hands are the sceptre and orb. The statue has been modelled to a scale of 8 ft. 6 in., and has both repose and dignity, with an admirable likeness of the august original. The royal arms are sculptured on the front of the pedestal, and the star of India is on the centre of the canopy. In the enrichments are blended the rose of England with the lotus of India, and the mottoes, "God and my Right," and "The Light of Heaven our Guide." On panels at the sides and back of the canopy there are inscriptions in English and in three of the languages of India. About 250 tons of marble have been used in the work. Mr. Matthew Noble is the sculptor.

When it reaches its destination we have no doubt it will be admired and appreciated by the dusky millions of the sunny land over which Queen Victoria reigns.

* See p. 567, vol. xxvii.

THE DANISH LUTHERAN CHURCH OF ST. NICOLAI, IN HULL.

The first stone of a new church for the Danes in Hull was laid on the 6th inst., by Mr. C. C. Brochner. A Danish congregation has existed here for about eighteen years—nearly fourteen years in connexion with the German Lutheran Congregation, but for the last four years it has been quite separate. The present minister is also the chaplain of "The Danish Society for Propagating the Gospel amongst Scandinavian Seamen in Foreign Ports," for the ports of Hull, Great Grimsby, and the Hartlepools. The stone was laid under the sanction of the Bishop of Saaland, in the kingdom of Denmark.

The silver trowel, with which Mr. Brochner manipulated in laying the foundation-stone, has upon it the following inscription:—"Denne mursk overraktes fra Danske i Hull til deres hoeiagtede og fortjente Landsmand Carl Christian Brochner, R. af D. ved Grundstenlægningen til den Danske Sct. Nicolai Kirke i Hull. August 6, 1870."—Meaning, "This trowel is presented by the Danes in Hull to their highly-esteemed and deservedly-respected countryman, Carl Christian Brochner, Knight of the Danebrog, on the occasion of laying the foundation stone of the Danish Church Sct. Nicolai in Hull. August 6th, 1870."

The church is designed in the Gothic style, and is to accommodate about 250 persons. The body of the building is 28 ft. by 55 ft.; there is an apse for the altar and vestry, and accommodation is provided for a reading-room, 30 ft. by 16 ft. All is upon the ground floor, there being an open roof, the point of which from the floor is about 34 ft. The tower and spire are situated at the north-west corner, the height being 70 ft. Mr. W. Botterill is the architect of the works, and Messrs. Lison & Wilkinson are the contractors. The whole cost is estimated at 2,500*l*., of which about 1,670*l*. are subscribed. At present the Danish Lutherans have for purposes of worship a conjoint occupancy with the Germans of the chapel in Nile-street.

MENSTON-IN-WHARFEDALE, YORKSHIRE.

On the 30th ult., the foundation-stone of the new church, to be dedicated to St. John the Divine, was laid at Menston, by Mrs. Hudson, wife of Mr. R. J. Hudson, of Moorville, Burley-in-Wharfedale. Menston is situated in the hilly district, on the south side of the beautiful valley of the River Wharfe, overlooking the village of Burley, and near to Ben Rhydding and Ilkley, a district often visited by the late J. W. M. Turner, the great artist, a large collection of whose early paintings may be seen at Farnley Hall, near Otley, in the same valley. The site of the church, given by Mr. Bertie Markland, of Leeds, is on rising ground near the village of Menston, on the side of the road leading down to Burley; and, from its elevated position, will be well seen from the Leeds-road, and other portions of the valley. The erection of the church is mainly owing to the exertions of the Rev. C. I. Black, and the liberality of Mr. Hudson.

The nave of the church will be entered through a south porch, and it has a central aisle with open benches on either side. The font will be placed against the centre of the west wall. The pulpit occupies the north side of the chancel arch. The nave is lighted at the sides by trefoil-headed windows, resting on a moulded string-course, that runs round the greater part of the church at varying levels. The chancel is joined to the nave by a Pointed arch of two orders, the inner one being moulded, and supported on moulded and carved corbel shafts, the columns of which will be of dark red stone. The chancel will be raised two steps above the nave, and will be entered through an opening in the low chancel wall, which will be of ornamental character.

The vestry is placed on the north of the chancel, and is entered through a porch, having a W.C., or, more properly speaking, an earth closet, attached. It is lighted by coupled lancet windows, and has a fire-place, the flue of which joins that from the heating-chamber under the chancel, in the stack rising from the nave-wall over the chancel arch. A segmental painted arch, 8 ft. wide, of two orders, connects the vestry with the chancel. It will be filled with a traceried wooden screen. The vestry is so arranged as to act also as organ-room, in which case the player will sit immediately behind one side of the choir, and out of view of the congregation. All the roofs will be open, and the principals, purlins, and cornice-moulds will be varnished. The wall-posts of principals will spring from carved corbels, those in the chancel being richer than the remainder. The walls and ceilings will be finished in colour. The church will be of stone throughout, taken from Hawksworth Quarries, near Gruseley, the walling being smoothly hammer-dressed. The roofs will be covered with party-coloured slating, arranged in bands and terminated with red ridge tiles and crestings.

Through the very rapid fall of the ground eastwards, room is provided for the heating-chamber under the chancel (the hot-air system will be adopted).

Mr. Benjamin Lapish, of Hawksworth, has the contracts for stonework, excavations, and drains; and Messrs. Longley Brothers, of Leeds, for the remaining trades. The total cost will be about 1,000*l*. The architects are Messrs. Price & Linklater, of London and Manchester.

NEW CEMETERY AT BINGLEY.

The consecration of that portion of the new cemetery for Bingley which has been reserved for the Established Church has taken place. The entrance road to the cemetery, which commences directly opposite Bingley Vicarage, on the Keighley turnpike road, is 150 yards in length. The entrance gates will consist of ornamental stone piers on each side of the carriage-way, with two passenger gates on each side, constructed of oak and wrought iron. Within the gate is a main road through the cemetery six yards wide and 300 yards long. The land within the fence covers an area of ten acres, of which seven and a half are appropriated for burial purposes, being equally divided between Dissenters and the Established Church. There will be two chapels—one for Dissenters and the other for the Established Church—built in the Gothic style of the thirteenth century, 39 ft. in length by 19 ft. 6 in. in breadth. The entrance to them will be by a porch a few feet from the main walk, fitted with wicket gates formed with open iron-work panels. The entrance door to the chapel will be within the porch. On the opposite side of the chapel will be a mortuary chapel, having a separate external entrance. A screen partition of stone and glass will separate the mortuary from the chapel, so that the corpse in the mortuary will be visible to the mourners in the chapel. The chapels will be heated with patent heating apparatus sunk below the level of the floor. A raised chancel or platform will be at the east end of the chapels, and stall seats will be provided,—two rows at the west end and two rows on the north and south sides of the chapels. The roof is to be open, supported upon circular-framed bindings with cut cusps, which will rest upon carved stone brackets projecting from the wall. The main feature in the external design is the bell-turret, supported at one gable upon a shaft and bracket with carved capital and other brackets. The turret will be open stonework, surmounted by a spire at the height of 50 ft. above the ground level. The ventilation of the chapels has been particularly studied, and the fittings of the mortuaries will be of improved character. The whole of the stonework will be dressed both internally and externally. At the entrance to the ground will be erected the registrar's residence and board-room. The style of architecture is Domestic Gothic, in accordance with the style of the other buildings. The total cost of the cemetery will probably reach about 8,500*l*.

PARLIAMENTARY.

Removal of Temple Bar.—In reply to Mr. Whitwell, Mr. Ayrton said that he could not state the views of the Metropolitan Board of Works with reference to Temple Bar. In his opinion, the sooner it was removed the better for the public. If removed, it would have the effect of widening the portion of the street available for carriages 11 ft.

The Foreign Cattle Market.—In reply to Sir C. Wingfield, Mr. Foster said that the Markets Committee of the Corporation had submitted to the Privy Council a site for a Foreign Cattle Market, and inquiries were now being made as to whether there was sufficient water accommodation.

The Thames Embankment.—Mr. Ayrton informed the House, in reply to a question from Mr. W. H. Smith, that the Metropolitan Board of Works were making arrangements to open approaches to the Thames Embankment from Villiers-street and Norfolk-street, and the work would be completed at an early period.

The Trade-Union Bill.—Mr. Anderson asked the Secretary of State for the Home Department whether before the close of the session he could give the working classes of the country an assurance that the Trade-Union Bill would be made one of the earliest and most prominent bills of the next session. Mr. Secretary Bruce had no hesitation in at once promising that a Bill would be introduced early next session.

Science Examinations.—Mr. Dixon asked the Vice-President of the Committee of Council on Education whether he had received numerous complaints from the teachers regarding the science examinations in May last, and whether these complaints had just foundation.* Mr. W. E. Foster, in reply, stated that eight complaints had been made formally. They related to two subjects—practical geometry and building construction, but he could not find that there were any just grounds for them. He did not believe that the examination papers were too difficult. In fact, the standard of marks was lowered this year. The explanation probably was that pupils were prepared to meet a purely drawing examination rather than a scientific one. The teachers had been able to obtain payment for their students under the branch of drawing instruction.

Metropolitan Improvements.—Lord Redesdale having presented a petition in the House of Lords from the vestry of Bermondsey, praying that no part of the land purchased for Southwark-park be left for building purposes, asked whether it was intended to obtain powers next session to purchase the remaining part of the west side of Parliament-street and the corresponding part of King-street; and whether the architect for the new offices had been desired to prepare plans for completing the Council-office buildings by connecting them with the new offices to be built on the other side of Downing-street, or otherwise, whereby the two blocks of building might be brought in unison. His lordship also asked in what manner it was intended to occupy the vacant spaces acquired within the new embankment, and whether it was intended to apply for powers to purchase the buildings below Craven and Northumberland streets down to the new embankment. The Marquis of Lansdowne said that her Majesty's Government had not yet directed their attention to the matter referred to in the first two questions. As to the land on the Thames Embankment, he could only refer to the recent discussion in the other House, the address to the Crown in which it had resulted, and the gracious answer which her Majesty had been pleased to return to it.

Indian Engineering College.—Mr. Plunket asked the Under-Secretary of State for India whether it was the intention of her Majesty's Government to establish an engineering college for the preparation of candidates seeking employment in the Indian Public Works Department; and, if so, whether it was the intention of her Majesty's Government to abandon or modify the present system of competitive examination for appointments in that department; and whether it was intended to abolish the system of competitive examinations for the forest service in India. Mr. Grant Duff, in reply, said it was the intention of the Government to establish an engineering college for the Indian service, to be entered by competitive examination. It was not intended to abolish competitive examinations for the forest service of India.

WORCESTER CATHEDRAL RESTORATIONS.

Up to the present time, upwards of 50,000*l*. have been spent on the works, and a further sum of about 16,000*l*. has been raised in little more than a month to insure the completion of the restorations. The works already done have been carried out under the direction of Mr. Perkins, architect to the dean and chapter, Mr. Gilbert Scott's attention having been confined to the re-arrangement and decoration of the choir, [illegible]ors by whom the works were executed were Mr. Bennett, of Birmingham; Mr. Hughes, of Bristol; Messrs. Collins & Cullis, of Tewkesbury; and Messrs. Wood & Son, of Worcester. The decorators were Mr. Hardman,

* We have received some letters on this subject, and will look to them.—Ed.

of Birmingham, and Mr. Wells, of Worcester; sculptors, Mr. Forsyth, of Worcester, and Mr. Boulton, of Cheltenham. The restoration committee have decided on proceeding at once with the remaining work. The necessary fittings for lighting the cathedral with gas, and the oak carving for the choir, have been ordered to be proceeded with at once. The choir roof is also to be looked to. The carvings in the choir will be elaborate and costly, and will include a lofty throne for the bishop, the cost of which is to be defrayed by the present diocesan A correspondent of the *Worcester Herald* suggests the construction of a handsome terrace, stretching from the west door down to the banks of the Severn.

PORTLAND CEMENT.

Messrs. W. Goreham & L. White, Swanscombe, have patented a method for making Portland Cement. By the ordinary mode of making Portland cement as practised in England, and usually called the "wet way," the chalk and clay are intimately mixed together in suitable proportions in wash-mills, with the addition of a large volume of water, so as to yield a liquid sufficiently thin to admit of its being pumped into reservoirs or backs. The chalk and clay then settle (remaining mixed) to the bottom, and as much water as possible having been drained off, the mass is then allowed to dry as far as the weather will permit, and is then dug out; and in order to complete the drying process, it is spread on stoves heated with coke or otherwise. When sufficiently dry the mixture of chalk and clay is broken into pieces and conveyed to the kilns for burning as usually practised. This is accomplished by introducing the lumps of dried chalk and clay into the kilns alternately with pieces of coke, the pieces of coke being either of the size as they come from the gas-works, or almost broken down with a hammer. The product obtained from the kilns is then ground.

SOCIAL SCIENCE CONGRESS.

The preparations for the Fourteenth Annual Congress of the Social Science Association, to be held at Newcastle-upon-Tyne, from the 21st to the 28th of September next, are progressing satisfactorily. His Grace the Duke of Northumberland, K.G., will be president.

In the Jurisprudence Department, under the presidency of the Hon. Lord Neaves, the following will be the special questions for discussion:—

MUNICIPAL LAW SECTION.

1.—Ought Railway Companies to be liable to an unlimited extent for the acts of their servants; and is it desirable to impose any check on fraudulent claims?
2.—Is it desirable to establish tribunals of commerce; and, if so, with what powers?
3.—Would the local administration of criminal justice be improved by the appointment of additional Stipendiary Magistrates, and the enlargement of the jurisdiction of Quarter and Petty Sessions?
The question of the relations between England and the Colonies, it is expected, will be again discussed.

REPRESSION OF CRIME SECTION.

Under the presidency of the Right Hon. Sir Walter Crofton, C.B., the following special questions will be discussed:—

1.—In what manner may the provisions of the Habitual Criminal Act and its administration be improved?
2. Is the working of the Prisons Act, 1865, satisfactory, specially with reference to productive prison labour?
3. What measures may be adopted with a view to the repression of habitual drunkenness?

In the Education Department, president, Dr. Lyon Playfair, the following are the special questions:—

1. Can better educational results in primary schools be obtained by the amalgamation of such schools?
2. By what means can a direct connexion be established between the Elementary and Secondary Schools and the Universities?
3. Is it desirable to teach science in elementary schools; and if so, what branches of science?

In the Health Department, president, Mr. Robert Rawlinson, C.B., the special questions are:—

1. What is the best method of disposing of sewage and excreta?
2. What modifications are desirable in the existing sanitary laws and administration?
3. What legislative measures ought to be taken to prevent the adulteration of food, drink, and drugs?

And in the Economy and Trade Department, president, Sir William G. Armstrong, C.B., the special questions are as follow:—

Section A.

1. Is it desirable that the railways should become the property of the State?
2. By what means may the labour market throughout England be more equally supplied; with special reference to local and temporary distress?

Section B.

Chairman: Mr. Rupert Kettle:—

1. How far is it desirable and practicable to establish Courts of Conciliation or Arbitration between employers and employed?
2. How far is it desirable and practicable to extend Partnerships of Industry.

A Ladies' Conference will also be held in connexion with the Congress.

THE COST OF FEVER AT WHITEHAVEN.

At the usual weekly meeting of the Whitehaven Board of Guardians, Mr. Hamilton, the registrar of births and deaths for the Whitehaven District, handed in a return, moved for at the last meeting of the board, relative to the cost of fever patients to the union, from midsummer, 1869, to the 3rd of August, 1870. The cost of fever patients during that time was as follows:—Infirmary patients—Preston Quarter, 81*l.* 7s. 9d.; Whitehaven, 360*l.* 13s. 6d.; making a total of 442*l.* 1s. 3d. Out-door patients—Preston Quarter, 45*l.* 13s. 2d.; Whitehaven, 126*l.* 10s. 7d.; making a total of 172*l.* 3s. 9d. The cost to the union of infirmary and out-door fever patients added together, amounts to 614*l.* 5s. Mr. Hamilton further reported that there had been no deaths from fever in the town since the 14th of July. A resolution was passed by the board that the returns be published. Mr. Musgrave said that the matter was one that should be considered as regards expense, if it was not worthy of consideration as regards the general health of the place. Mr. H. Jefferson said, if the trustees would do nothing for them, there were other sources to which they could apply. There was the Poor Law Board, and the Home Secretary, who, they might depend upon it, would not allow an important town like Whitehaven to continue in its present state. An order would very likely be made that a municipal corporation should be established; and then the town would have the same chance of electing its representatives that it had of electing members of the board of guardians.

THE NATURAL HISTORY MUSEUM, BROMPTON.

In the press of matter last week, we omitted mentioning that the House of Commons had granted a vote of 6,000*l.* for the commencement of the Natural History Museum, on the site of the Great Exhibition building of 1862, South Kensington. The Chancellor of the Exchequer said, in his explanatory speech, that some persons had proposed to increase the British Museum; but the land there was worth 50,000*l.* an acre, and that scheme was given up. Then, another plan was, to take the land between Westminster Bridge and Charing Cross; but that would not be sufficient. The only land large enough was a piece of 16½ acres at South Kensington, which was bought from the Commissioners of 1851 for 7,000*l.* an acre, or for 120,000*l.*, and which is worth 100,000*l.* more at this time. This land must be used for science and art purposes. It was now a sort of "potters' field," and a scandal to the locality, and they ought to do something with it. The Metropolitan Railway had a station near the spot, so that communication would be easy. The whole sum required would be 350,000*l.*; but he did not ask now for more than was necessary to clear the land and put it in order.

AN ORGANISATION OF LABOUR: SALTAIRE.

Sir,—I have just returned from a visit to Bradford and Saltaire, to read your article on "The Organisation of Labour." What can I do but mentally revert to the work done by that great captain of industry, Sir Titus Salt, whose two sons and partner so ably act as his lieutenants? At Saltaire truly, if anywhere, we may see what can be done by properly-organised industry. Established as a manufacturing enterprise, the works are traversed by road, rail, river, and canal. The mills, of enormous size, are of the most approved construction, and designed by architects on true principles; the designed by architects on true principles; the machinery contained in them is of the latest and best construction; so that it is really a pleasure to the operatives to watch them as they produce the best possible work, and at the most rapid rate. For these operatives there is abundant scope for their abilities and energies, opportunities occurring by which they may rise in position, until they become leaders under their chief. For them are built, adjoining the works, on the slope of a hill, more than 800 houses of first-rate construction. For their children are provided large day-schools and play-grounds, fitted with apparatus for every gymnastic exercise, so that their bodies may be well developed. Large and beautiful places of Christian worship are built and well supported. What would be "almshouses" anywhere else are here tasteful and comfortable homes provided for the aged workers of both sexes, who receive a weekly allowance sufficient for their needs.

A large park is now in course of formation, and a literary institute and class-rooms, of large size and lofty proportions, are in progress, and will be completed before winter. Co-operation provides food and clothing for all who desire it; a large dining-hall also supplies cooked food and drink at such prices as make us of the metropolis and elsewhere stand amazed with delight. Humanity in blouses may here get the needful material to make flesh and blood, without being compelled to waste their money on mere ornament. And, lastly, a regiment of Volunteers is organised for the protection of their hearths and altars, in which each man takes his station.

Surely this is an industrial organisation, which is working a great social change, and culminating in a patriotic union for protection and peace. Would to Heaven we had such an organisation in the building trade, where each man should endeavour to excel his neighbour in the honesty and value of his productions. Let the great captain once arise, however, and I believe I can answer for it that he will not want a following.

E. G.

CONCRETE AND FACING BRICKS AT MARGATE.

Three or four cottage villas, built of concrete, and faced with Taylor's patent bricks, the roofs covered with Taylor's patent tiles, may now be seen on the railway line between Margate and Birchington, standing in a most exposed position, with a north aspect, and close to the sea-side. They are of the bungalow style of architecture, with wide projecting roofs. They are said to have been erected at the cost of the above patentee, who last week, it is said, purchased a portion of the Neame estate, at Birchington, whereon to erect some other villas of the same class.

Seeing that many practical architects have hitherto hesitated to employ these patents in such very exposed situations, some detail of cost, construction, and particularly of ability to resist heavy drifting rain and storms of wind, such as are known occasionally to try the best slated roofs, and thickest walls along the Margate coast, would be acceptable to a numerous class of the profession practising at the sea-side.

By-the-bye, is not 1,200*l.* to 1,500*l.* per acre for plots of building land on this Westgate estate, a very remarkable increase upon the value of land that would not, a few years ago, have brought 80*l.* per acre?

S. L.

IMPROVED INDUSTRIAL DWELLINGS COMPANY.

The report to be read at the half-yearly meeting this Friday, the 12th inst., shows that the whole of the share capital, viz., 125,000*l.*, has been subscribed, and a further sum of 125,000*l.* will be borrowed at 4 per cent. from the Public Works Loan Commissioners; which will represent a total capital of 250,000*l.* The gross rents received during the half-year amount to 6,878*l.* 0s. 7d.; interest allowed by bankers, and other items amounting to 68*l.* 15s. 8d., making the total income 6,946*l.* 16s. 3d. The total expenditure, including the contributions to the reserve accounts, amounts to 3,169*l.* 4s. 8d., leaving a profit of 3,777*l.* 11s. 7d., which is equal to 6*l.* 0s. 10½d. per cent. per annum on the subscribed capital. The profit for this half year, added to the balance, viz., 2,284*l.* 19s. 10½d., brought forward from last half-year, gives a total to the

credit of revenue account of 6,062*l.* 11s. 5½d. The directors recommend that as heretofore, a dividend at the rate of 5 per cent. per annum be paid, which will absorb 3,125*l.*; and that the balance remaining, viz., 2,063*l.* 18s. 2½d., be carried forward. The directors have, since the date of last report, completed the purchase of the Bethnal Green Estate. The five blocks of buildings at Ebury-street, and Queen-street, Pimlico, are approaching completion; but the directors have no reason to think that they will be ready for occupation before October next. At Ebury-square, however, the dwellings are in a more forward state, and the directors believe that these buildings will be occupied before the end of August. The fifty-four dwellings on the Bethnal Green Estate have been completed, and fully occupied for upwards of five months; and thirteen additional blocks of dwellings, which will afford accommodation for 130 families, or about 500 persons, are now in course of erection on the same principle.

THE LINCOLN ARCHITECTURAL EXCURSION.

The following is the programme:—

Monday, August 22nd, 2 p.m., Mr. Sharpe will deliver his introductory lecture, on the cathedral, in the Assembly-rooms; 8 p.m., evening meeting in the Assembly rooms. Tuesday, 11 a.m., Mr. Sharpe will accompany the members over the cathedral; 8 p.m. evening meeting at the Assembly-rooms. Wednesday, the party will leave Lincoln by train for Caythorpe, at 8.15 a.m., and will return by carriage, visiting the following churches:—Caythorpe, Fulbeck, Leadenham, Wellbourn, Wellingore, Navenby, Coleby, Harmstone, Waddington, St. Peter Gowts, St. Mary-le-Wigford. Thursday, the party will leave Lincoln, by train at 6.35 a.m., for Sleaford *viâ* Boston, and will visit by carriage from Sleaford the following churches, returning to Boston by train from Sleaford, at 8.22 p.m., Sleaford, Silk Willoughby, Osbournby, Threckingham, Billingborough, Horbling, Swayton, Helpringham, and Heckington. Friday, the party will leave Boston at 7.50 a.m., by train for Sutton *via* Spalding, and will return by carriage to Spalding, visiting the following churches:—Sutton, Gedney, Fleet, Whaplode, Holbeach, Moulton, Weston, and Spalding, and will proceed by train from Spalding to Peterborough at 7.36 p.m.; and Saturday, August 27th, 11 a.m., Mr. Sharpe will accompany the members over the cathedral, describing its architectural history.

Attendance at these meetings and excursions is open to all existing architectural societies, as well as to the pupils of architects in connexion with the Royal Institute of British Architects, the Architectural Association, and all other local professional societies.

FALL OF THE NEW COVERED MARKET, PRESTON.

On Saturday morning, the skeleton of the new covered market for Preston, consisting of massive cast-iron pillars, wrought-iron principals and girders, gave way, and fell inwards, with a tremendous crash. The market is of considerable extent, and the greater portion had been made ready for the roofing. It is supposed that one of the spans had been insecurely bolted, and that it had hitched to one side, and that its weight and pressure gradually drew over the whole erection. What on the previous day was an imposing structure is now a wreck and ruin.

TENDERS.

Some little time ago the Westminster District Board of Works, astonished by the sudden rise in the tenders for slopping and watering, resolved to try the experiment of doing the work themselves, and at the end of twelve months discovered that, whereas the lowest tender for the work was 8,000*l.*, the Board in its first year, with much to learn, managed to do the work for 5,000*l.* odd, being a saving of 3,000*l.* or so. The explanation of all this was most probably that the contractor, for being remiss in his work, was fined most royally, and most royally took his revenge in turn by increasing his tender. A case has occurred at Chelsea, in which the difference between the highest and lowest tenders was so marked as to be the subject of somewhat strong comment. The Chelsea vestrymen, about to rise for the recess, determined to have the Board-room cleaned and repaired, suggesting an elderly charwoman scrubbing the boards from rosy dawn to dewy eve, a vigorous carpet beating, and so forth. But, being convinced there was no use in doing a thing by halves, and the classical readers remembering that a scant sacrifice to the Lares and Penates of the Chelsea Vestry-hall would be shabby even in these days of economy, they resolved to launch out, regardless of expense, and have the whole building painted and renovated. The local tradesmen were then invited to tender for doing the work, and about a dozen responded. The tenders being opened, the Board began to stare, for such a difference in price is not seen every day. The highest tender, as given in the *Builder*, was 226*l.*, and the lowest was 53*l.* All the parties tendering were respectable tradesmen, well known to the vestrymen, ratepayers for years, and, from a parochial point of view, unexceptionable. But the question went up and down the Board seeking whom it might get to answer,—If one tradesmen tendered for 226*l.*, how came another to tender for 53*l.*? This question of finance puzzled the vestrymen. Both the parties tendering are old-established tradesmen and above suspicion; so that this question is a Chelsea mystery, solvable, of course, but by what means the questioners perceive not. The Vestry took the lowest tender; but the mystery remains as yet unsolved. The Vestrymen ask what is the reason of this great difference in the tenders, and echo answers, "Don't know."

THE CHEESEWRING.

Messrs. John Freeman & Sons do not inform you that, practically, the Cheesewring is already destroyed: but this is really the case; for, although it still stands, it has been propped up with a pile of stones; and its singularity and picturesque appearance are now, therefore, things of the past.

Messrs. Freeman say that there is no danger to the Cheesewring; but those who have seen how near the quarry is will differ from them; and those who saw the necessity of placing stones under it, in order that it might not topple over, would not be likely to recognise Messrs. Freeman's views of its safety. H. B. W.

ROTHESAY.

The ancient and royal burgh of Rothesay bears something of the same relation to the Island of Bute that Windsor Castle does to the town of Windsor. It is the capital of the island, so to speak, the only town of importance within its boundaries, the site of its old feudal castle, the locality of its modern gaol; and it is, moreover, at once the busy little seaport, the herring-fishing station, the manufacturing town, and the fashionable watering-place. A curious place on the whole, we venture to say, and more deserving of keen observation than many a midland town ten times its size and population. For, although Bute is only separated by a ferry of a few furlongs, across "the Kyles" from the coast of Argyleshire, and is within easy distance of Ayrshire and Dumbartonshire, it is, nevertheless, a genuine and unmistakeable island. Communication with the mainland is sometimes difficult and occasionally impossible. Hence its little capital may be supposed to contain within itself all the resources which are necessary and even indispensable to the well-being and progress of an independent community.

The origin of the name is lost in the hopeless obscurity of the Celtic etymologies. Holinshed, upon the authority of some previous historians equally reliable, assigns the mythical year 564 before Christ as the time when certain Scottish men settled in the Western Islands under "Rothesay, the son of Notafilus," who, he continues, "named that isle in which he began to possess Rothesay, after his own name."* "But in regard to the authenticity of this statement," says Mr. Read, a more recent authority, "it were quite needless to inquire, it being chiefly on account of the coincidence of the name that I have quoted the passage at all."† In point of fact, Rothesay seems to possess a cognate etymon to the patronymic of Lord Rothes, which signifies, we believe, in the Gaelic root, a tower, a place of strength, and, by induction, a fortress or castle.

Of the ancient castle we have already had, perhaps, enough. Time and civil wars have told heavily upon it. But its unique, and, in one sense, sacred historical interest has not of latter years saved it from encroachment, and even from debasement. More especially it has suffered greatly at the hands of the burgh feuars, or freeholders, from those, at all events, who have, without the slightest regard to consequences, erected a perfect colony of dirty and disreputable-looking tenements up to the very verge of its beautiful moat.* The Castle of Rothesay, indeed, is at this moment absolutely buried in the centre of the very worst quarters of the town, and is now quite concealed from the view of the tourists entering the bay, or passing in the numerous steamers, through the estuary of the Clyde. Formerly in approaching from the bay, it might be seen towering conspicuously above the squalid dwelling-houses which surround it; but within the present century higher houses have been built, and new streets, such as Montague-street, formed between its site and the sea. Such a case of pure and simple vandalism we have not met with for many days, and almost never beyond or without the privileged precincts of a royal burgh. It should have been remembered that although Rothesay is an ancient and royal burgh, yet it was from the royal castle it originally derived its charter and its immunities; and long before the provosts and bailies had intermitted with the lives and property of the lieges, the castle reposed in its pride and strength in the green bosom of that lovely valley which forms the natural approach to the bay.

Before passing from the consideration of this Mediæval relic, we may just mention,—although it is hardly necessary, we presume, to do so—that it is from this same old castle his Royal Highness the Prince of Wales derives his second hereditary royal title—the Duke of Rothesay. Rothesay was the first dukedom created in Scotland (Albany was the second), in the person of the ill-fated son of King Robert III.; and the heir apparent to the Scottish throne has ever since borne the title.†

We must now proceed to take what, we are afraid, can only be regarded as a cursory survey of the modern burgh,—first, just glancing at its external appearance. Unquestionably Rothesay shows to the best advantage when seen from the bay. At any given point on the line of the steamboat track between Toward Point and the anchorage off the pier, the view is really superb. The bay itself has often been compared to that of Naples, to which we can fancy, however, only a very distant resemblance; it rather recalls to our recollection the bay of Dublin on a smaller scale, as we have previously indicated. On both sides the land recedes from the shore in abrupt towering eminences, exuberantly wooded and glistening with foliage; but in the centre it passes away into that gentle valley which we can never cease to admire. The whole sweep of the coast, in the immediate foreground, up to Port Bannatyne, which may be said now to form a continuation of Rothesay, is filled in with clusters of rather neatly-designed marine villas, built, for the most part, with the dark-coloured native green stone, enlivened with courses and quoins of very white sandstone, also indigenous to the neighbouring quarries. These villas, we were informed, are chiefly composed of lodging-houses. The centre group is occupied with hotels, right in front of the pier and small harbour and docks which occupy the centre of the bay. On the terrace immediately above this are situated, pretty much on the same altitude and level, all the spires and public buildings of which Rothesay can boast, including the Free Church, the United Presbyterian Church, and, above all, the Rothesay Academy, just finishing, which, although, somewhat too conventional in its aspect, occupies, not altogether unworthily, the best site in the town. Then, in the distance, upon a third terrace, rising still higher from the shore, are to be seen cropping out, the indications, rather than the full outline, of another range of buildings, chiefly villas and cottages, the picturesque and secluded residences of the local magnates and retired Glasgow merchants, who seek in this retired and lovely spot to look upon a prospect and to inhale

* Holinshed's Chron., ed. 1577, p. 5.
† Hist. of the County of Bute, p. 26.

* We were also credibly informed that much of the building material so employed was scandalously abstracted from the ruins.

† A little incident occurs to us here connected with her Majesty's first or second visit to Scotland, which we may be pardoned for repeating. Upon one occasion—at a levée—a Scotch nobleman was announced by the Lord Chamberlain, under the style and title of—the Duke o Rothesay! Her Majesty was for a moment puzzled—the name did not occur to her as that of any living duke; but before explanation could be had, in marched H.R.H. the Prince of Wales (then a boy of four or five), in full Highland costume of the Royal Stewart tartan, with a philabeg above his knee, a claymore at his side, and an eagle's feather in his bonnet!

an atmosphere in their old age to which their laborious youth has been a stranger. On the whole, the *mise en scène* is singularly striking and effective, and possesses, no doubt, nearly all the elements of picturesque beauty which it is possible to desire, or at all events to obtain, in this northern latitude. A visitor to Rothesay for the first time will, especially after passing through Glasgow or Paisley, be apt to suppose that he has at last had a glimpse of one of the most favoured spots in nature.

Yet all this and more, if we had space to spare for panegyrics, we must admit, with what qualified admiration we choose, so that we leave ourselves free to confess that the royal burgh of Rothesay does actually and in point of fact look best at a distance. If we except the splendid circle of the shore, kept clean and airy by the incessant action of the waves on the rocky beach of the bay, the public square, between the pier and the Bute Hotel (where the fountain is placed) and the long street (Montague-street) immediately behind this, it appeared to us that no other streets would bear the most slender scrutiny or examination; and as to the public buildings, we were sadly disappointed.

There can be no doubt that certain sums of money have been freely squandered on the erection of the gaol, as it is popularly called by the inhabitants, or the county buildings, which being got, of course, from the proceeds of an assessment levied over the entire county, we are not, perhaps, called upon to criticise it too minutely. But of the churches, so recent and so pretentious as some of them are, what must we say? The Free Church of Scotland, at least, should have tried to do something here in the shape of creditable architecture; and for one obvious reason, among others, that there is a little Roman Catholic chapel in "Columkill-street" (how suggestive the name!) which is the only piece of modern ecclesiastical architecture in the island worth a moment's notice or consideration. It is painful and rather discreditable to the community, by the way, to observe the necessity for preserving the stained-glass windows of this chapel from violence, obviously, by trellises of galvanised iron wire. As to that painfully obtrusive and barn-looking building which overlooks the picturesque cemetery of Rothesay, and which stands in such close juxtaposition to Lord Bute's mausoleum, on the one hand, and to the ruined chancel of St. Mary's, on the other, we must really preserve silence.

The Episcopal chapel, which is situated at the corner of the Gallowgate, right over the outlet of the mill-lake (which is now also the principal common sewer of the place), has not, we are afraid, done very much to redeem the ecclesiastical architecture of Rothesay. Not to speak of the design, the building has quite a stunted appearance. The chancel is disproportionately large; the windows are far too small (gas has to be lighted during morning service, a very gross sanitary blunder); and the pews, let us add, are decidedly uncomfortable. A snobbish and clearly un-Christian practice seems to prevail, of not supplying the back pews, which are of course meant for servants, either with cushions, hassocks, or even with floor matting! Hence, it is impossible to kneel at prayers without bringing the knee-joints in actual contact with the cold stone pavement.

The general character of the domestic architecture may be separated into two well-marked classes, that of the town and that of the suburbs. The first is, on the whole, very good; the second, almost wholly very bad. The villas and suburban residences are just as good as any of those we may see any day in the neighbourhood of Glasgow, or in fact, in any watering-place on the Clyde; while the town properly so called (toun), is made of a congeries of dirty little streets, and small two-story tenements filled with the cotton-spinning population, and their numerous progeny, and constituting, as a whole, we must really say, the most disgraceful little town, in a sanitary point of view, we have seen in the whole of Scotland. The fact is, a watering-place and a manufacturing town are theoretically ill-suited to each other; it is only, however, when we see them in combination in practice, as we do in the present case, that we get fully alive to the errors of the arrangement.

Rothesay, considered as a watering-place, need not take up much of our attention. The *season* commences about the beginning of June, and is supposed to last till the end of October. Of course, the people who go there are chiefly Glasgow people, or at least Scotch people generally—Edinburgh now contributing its quota since the extension of railways and cheap trips. During the height of the season an immense quantity of iced champagne and cold whisky-and-water is disposed of. Steamboats are everywhere. Yachts of every description sail in and out of the bay. Pinnaces, punts, fishing-boats, yawls, cockle-shells one might almost say, are to be seen scuttling about with their crews of boys and girls; and during the season in which the herring-boats are disengaged, the proprietors also try to eke out their scanty and precarious income by fitting them out as pleasure-boats. In fact, the population of such an island is necessarily of an amphibious character. Every villa has a boat, every cottage a cockle-shell; idle boys a punt. More particularly this may be affirmed of the upper ranks. The present Marquis of Bute, for example, has lived almost literally aboard his yacht since he attained his majority; and again, we may mention, on the day Lord Glasgow came down to reverse the foolish decision of the Rothesay magistrates, we saw a splendid specimen of the British nobleman's yacht in the bay. But the spirit seems to go further than that. Mr. Lamont, the late M.P. for Bute, who is a distinguished member of the Geographical Society, had a yacht built for the purpose of Arctic explorations.

It may be worth pointing out in this connexion that Rothesay, like all fashionable watering-places, has its medicinal spring, as a matter of course. Somewhere about forty years ago, at a time when much greater importance was attached to the pathological action of mineral water than there is in the present day, a spring was discovered at Bogany-point, about a mile eastward of Rothesay; and it soon, we believe, acquired much reputation as a remedy for cutaneous and glandular diseases,—a thing, we should venture to say, of great practical importance in that district. It was also tried in cases of rheumatism, but not so successfully: it could not stand comparison here with Buxton or even Harrogate, probably owing to the peculiarities of the climate as much as to the chemical differences of the springs. According to the late Professor Thomson, of Glasgow, the Bogany water contains in the form of soluble solid ingredients muriate of soda, sulphate of lime, chloride of magnesia, together with a minute quantity of silica, and the gas is sulphuretted hydrogen. We cannot speak of the virtues of this water from experience; for the real and genuine truth of the matter is that Rothesay does not depend upon its mineral water for its reputation. The whole hygienic virtue of the place rests, and must ever rest, upon *its pure air*. And the grand secret of the purity of the air in Bute (as well as its freedom from fogs) is explained simply enough by the direct and unimpeded action of the sun's rays on its surrounding atmosphere. Compared with that of Glasgow, it is something like emerging to a sunny surface from the bottom of a stifling coal-pit. Glasgow is always enveloped more or less in a dense and sometimes impenetrable cloud of noxious gases. Rothesay, on the other hand, unless it rains (which it does, however, 196 days in the year), has an atmosphere which, for mildness and purity, is rarely excelled. Something is also due to the prevailing direction of the winds, and on this point we find, in the fifth volume of the statistical account of Scotland, a valuable table of seven years' close observation, made by Dr. Meek, of Glasgow, in which the average current of the winds are stated as follows:—

Winds.	Days.	Winds.	Days.
S.W.	174	N.E.	104
N.W.	40	S.E.	47
	214		151

The fatal, acrid, and biting north-east wind blows only at a comparativaly small ratio (1 to 3 nearly), therefore, to the other mild winds, including the gentle zephyr; and it may be added that western-coast districts are, of course, always warmer than inland districts, not only because of the gulf stream, and the comparatively lower level, but also from the circumstance that the sea preserves a more equable temperature, which it communicates to the adjoining land. As another example, we may again quote the instance of Bergen, in Norway, which enjoys a milder climate under the 60th parallel of latitude than certain places in Central Germany do under the 50th. For similar reasons, however, it should never be forgotten that Bute, as well as Bergen, is subject to more rapid changes of weather, and particularly to storms and high winds; and it may be this reason which accounts for the very large proportion of the native islanders and population of Rothesay we observed with weak and inflamed eyes. We must not forget, however, that this might also be due to the cotton manufacture.

The introduction of cotton spinning into Rothesay, which we have more than once referred to, was an accident, but a very curious accident, as it was also, at the same time, the introduction of the cotton manufacture into Scotland. It occurred in the year 1788. The story is told at great length, and with much admiration, in the local histories into which we do not care to follow it in all its details. Briefly, it is something like this:—The Marquis of Annandale of that day had agreed to give a spot of ground, with water-power, on the Annan to a company who came from Oldham to introduce the cotton trade into the south of Scotland, attracted, no doubt, by the superabundance of the population and the low wages of labour. But when the company appeared on the ground, with their formidable show of machinery and spindles, the Marquis, terrified at the prospect of another Manchester in his territory, withdrew the permission. Fortunately, the agent of the Marquis of Bute happened to be on the spot. He, it soon appeared, was not so squeamish. He had also ground to let and water-power to dispose of; and so the cotton company was established at Bute.

But why a cotton factory should have been—evidently without consideration—planted in the very centre of the little town of Rothesay, close to the castle, and in one of the loveliest spots on the island, can only be accounted for, we imagine, on the same principle somewhere pointed out by Mr. Ruskin, which makes the European monarchies select the neighbourhood of Verona and Milan for their battle-fields! As the world gets older it will, we suspect, be more careful of its beauties! Originally, the motive power depended exclusively on the water power derived from Loch Ford, which is extended nearly a mile in its natural length by means of an ugly embankment stretching across the valley close to the cemetery, and spoiling much the beauty of the prospect. A continual source of danger to the lower levels exists, of course, in this embankment; although we could hear of no special provision for its regular inspection. Superadded, however, to this water power, there is now the force of the steam engine, if we may judge from the numerous tall chimneys vomiting forth as a matter of course, or, rather, as a dictate of conscience, their regular, systematic, and indisputable quota of vile and disgusting smoke! Surely the 500 people who are employed at these works might be employed without doing such damage to the other 5,000 odd who live in or near the town. But, of course, the local cotton-spinners are the local authority, and it is in consequence difficult to put the Smoke Act in force! We ought to state in all fairness that the produce of these mills (chiefly water-twist) is of a very high order, and commands the highest prices in the market.

We must, however, try to say something more of the local authority. The royal burgh of Rothesay is, at this moment, governed by a provost (Mr. Daniel Macbeth), three bailies (whose names we need not quote), several town councillors, and, of course, a town clerk (Mr. John Wilson). The last of these officials has always, we believe, been the most important personage within the boundaries of the burgh; and to the late Mr. John Blain, town clerk of Rothesay, the world is indebted for almost all we know of the history of the island.

A very good story is told of this Mr. Blain *à propos* of pluralities. It is said that upon one occasion an extensive proprietor in the neighbouring county of Argyleshire issued invitations to dinner to all the official persons in the island of Bute. These were:—(1). The commissary. (2). The town clerk of Rothesay. (3). The sheriff substitute. (4). The justice of peace clerk. (5). The surveyor of taxes. (6). The collector of customs. (7). The factor on the Bute estate. Having ordered dinner for this number of guests he was astonished to find only one solitary individual make his appearance at the hour of cause—to wit, the aforesaid Mr. John Blain! who jocosely explained that in this case he was *in propria persona* absolutely seven gentlemen rolled into one; and had actually received the whole cards of invitation himself! (See the preface to the "History of the County of Bute and Families connected therewith." By John Eaton Ried. Glasgow. 4to. 1854.) The Bute officials have

still a strong affinity for the plural number. For example, Provost Macbeth (who recently immortalised himself in the pages of *Punch* by attempting to put a stop to playing billiards in the Bute Arms Hotel) is also sheriff clerk to the county—two officials which one might suppose ought to be incompatible.

In addition to their ordinary official duties the magistrates creditably discharge their functions as managers of the poor. The lunatic paupers in Bute are much above the average of inland parishes; and they are placed, we believe, under the able charge of Dr. Sibbald, at Lochgilphead. A ragged school has also been established in Rothesay; and we must say that it was really a pleasant sight we had of the "scholars," male and female, marching up the Barone-road on the morning of her Majesty's birthday,—the boys smartly dressed in blue Guernseys trimmed with white braid, and Glengarry bonnets; the girls with plain blue jackets, straw hats, short skirts, and thick boots, and the flute band playing with much spirit and precision,—

"Over the water, and over the seas,
Over the water to Charlie!"

They were on their way to an annual feast at the neighbouring rifle range; and strongly suggested to us the thought, how easy it is to change wild and even criminal boys into good sailors and fishermen! This ragged school procession was one of the pleasantest sights we saw on the island.

Having said so much of the municipal duties, we must, as faithful historians, advert to what we saw of neglect. We do not know under what police bill the sanitary business of Rothesay is administered (under which King Bezonian?), but, whichever it may be, the sanitary condition is very bad. That mill-lake of itself is quite enough to corrupt the whole atmosphere of the town. The water may be pure enough as it leaves the reservoir (although we question that very much). But here, at the very outset, it receives the drainage of the graveyard, and the sewerage of Barone-terrace. It cannot be so very pure, therefore, as it glides beneath the undershot wheels; and here, again, it receives the artificial sewage of the manufactories. A tan-work or skinnery comes next in order, and this institution not only seems to hold the poor mill-lake to be the proper receptacle for its waste animal matter and superfluous *viscera*, but also as the proper duct for its impure hot water! It is almost incredible to relate, but it is nevertheless true, that the miserable inhabitants of the adjacent houses may be seen at every stage drawing water out of this dirty sewer for domestic purposes. We do not say that they really drink it (for Rothesay is now plentifully supplied with public wells), but we have certainly seen them washing their clothes with it! So open sewers seem to be little thought of in Rothesay.

We do not refer so much to the fashionable district surrounding the shore; but even at the equally pleasant and naturally far more salubrious quarter of Barone-road the evil is quite as great. Some of the visitors to the island complained bitterly of the open and stagnant sewer we have mentioned, which drains the whole of Barone-terrace. It lies, we may say, under their very nostrils, and is in fact not more than four or five yards at its commencement from the bedroom windows. The smell proceeding from it, especially during hot weather, is most offensive; and there can be no question at all about its dangerous condition. Strangers who come to live in Rothsay, and invalids who come in quest of pure air, immediately discover it, and point out its evil influences: and it has actually been the means, we were told, of depreciating the value of the property. The proprietors say, of course, they are not to blame, as their title to this sewer was conveyed to them in their feu charter and disposition. And not only does it destroy this property as a place of residence, but on its way to the mill-lake it spoils one of the prettiest walks in the neighbourhood,—the meadow walk to the cemetery,—so much frequented by touriats and strangers. Its bad effects are not, we may add, at all hypothetical; on the contrary, there were several cases of fever last year on this very spot, one or two of which were fatal.

Now, we do not see why the people of Rothesay should submit to these things much longer; and clearly the remedy is in the hands of the local authority. If they should not act, there is, we suppose, an appeal to the sheriff, whom failing, to the Home Secretary. And let us point out that we do not speak exclusively on behalf of the people of the town. Indeed, Rothesay is made up of a variety of people; and Bute is quite overwhelmed with invalids. It is painful, in truth, to see the number of poor invalids—dying consumptives and asthmatic valetudinarians—going about in all directions. This, of course, is a thing which may be expected. But there seems also to be an uncommonly large native increment of maimed and disabled men and women—here wanting an arm, there a leg, obviously the produce of the accidents at the cotton-mills. A great many people of the lower class of inhabitants are also, as we have mentioned, afflicted with sore eyes. We heard, too, something of scrofula and congenital disease proceeding, it was feared, from too close a consanguinity in marriages.

All such cases imply a depressed circulation, and demand imperatively pure air. Of course, the country people, properly so called, as far as we observed, look uncommonly healthy, the farmers and ploughmen especially; but the country air is almost quite pure, while Rothesay air is, as we have seen, much contaminated. For the sake, therefore, of the town itself, and of the hospitable character of the island, but especially in the interests of the invalids and young children, we write these things, under the hope that something will be done, and that speedily, in the shape of improvement and amelioration.

AUSTRALASIA.

Telegraphic Progress.—A scheme for bringing the Australian colonies into telegraphic communication with the mother country has been introduced. It is to be styled The British-Australian Telegraph Company, Limited, and is created in connexion with the five companies by which the various sections that will constitute the great through line from England to the East have already been put in active progress. The present work is to consist of a cable of 563 miles from Singapore to Batavia, to join the Dutch lines which run to the south-eastern extremity of Java; whence another cable of 1,163 miles will be laid to Port Darwin, in Australia, where a land line of 800 miles will connect the system with Queensland, New South Wales, Victoria, South Australia, Western Australia, and Tasmania. The capital is to be 660,000*l*. The making the entire lines is to be confided to the Telegraph Construction and Maintenance Company, at the contract price of 634,000*l*., of which 120,000*l*. are to be in paid-up shares.

VICTORIA.

Melbourne.—The members of the Church of England have been the first to move in the matter of erecting a college in affiliation with the Melbourne University. Trinity College is to be the name of the new institution—of course designed for the purpose of imparting special training and instruction to Church of England students. It is expected that the building will cost between 7,000*l*. and 8,000*l*., and the projectors have held a meeting, Sir William Stawell in the chair, for organising means to raise the sum required to complete the first portion of the building,—about 3,000*l*. The college is not only intended for theological students, but as a place of residence for lay students whose parents do not reside in Melbourne.

Considerable success has attended the establishment of schools of design. The benefits experienced from the original school in Melbourne will ere long have been carried into all the large suburbs around it. The schools opened at Carlton, Emerald-hill, and Brunswick each report a good average attendance. The requisite steps have been taken for opening schools at Fitzroy, Sandridge, and Richmond. The Artisans' School of Design at the Trades' Hall, Lygon-street, has commenced a new quarter, with 182 students. The classes were under the superintendence of the usual staff of honorary teachers. The geometrical class was commenced under the tuition of Mr. Ingamells, with twenty-two pupils. The schools were visited by the hon. secretary and some of the teachers of the newly-established school at Fitzroy. It was also visited by some of the leading decorative artists of Melbourne. This school is now a model for others who wish to forward technical instruction.

The ceremony of solemnly blessing and opening the Roman Catholic Church dedicated to St. Ignatius, in Church-street, Richmond, took place on Sunday, 13th March last. The plans were presented to the Society of Jesus by the sons of Mr. Wardell, two old pupils in the society's college at Stonyhurst, Lancashire. The style of architecture is the Early French, of the thirteenth century. It is built of bluestone, with freestone dressings. The arches supporting the nave are of freestone, and the pillars of bluestone. The floor of the church is to be inlaid with encaustic tiles, and the present altar, which is in French white, inlaid with gold, will be only temporary, a more splendid one having to be substituted for it when the whole of the church is built. When completed, the building will be 130 ft. in length, but the portion finished and opened will accommodate 1,000 persons. Over the principal entrance the motto of the Jesuits, "*Ad Majorem Dei Gloriam*," is engraved in freestone. It is proposed hereafter to complete the nave and aisles to their proper length, and to add a chancel, choir, lady chapel, sacristies, and to carry up the tower and turret to their proper height. An illustration in the spirited *Illustrated Australian News* gives the church as it will appear when finished. The cost of the portion just finished has been 9,000*l*. On the south side of the church the presbytery will be erected, in which will reside the Jesuit fathers connected with the mission. Mr. Denny, the architect, of Collins-street, was the gentleman selected to carry out the building.

The labourers who struck work at the Alfred Graving Dock, Williamstown, had not been able to arrange the difference between themselves and Mr. Irons, the contractor. They struck for the eight-hours system, which they saw had been adopted in branches of the public service, where day labourers were employed, and which was to be adopted under the contract about to be commenced for the construction of the first fifty-six miles of the North-Eastern Railway. They would not agree to a corresponding reduction in wages until the work was finished. They had come to words with the Short Hours League, which disapproved of their conduct. The case of the firemen and stokers employed at the metropolitan gasworks has recently been brought under public notice. They have at present to work twelve hours a day, at a very laborious occupation. The eight-hours system is gradually extending; the masons, bricklayers, carpenters, and others of the same class have long enjoyed it; and ordinary labourers and persons engaged in indoor trades are now beginning to assert their claim to a share in the benefits of the system.

In Brunswick, a mechanics' institute has been erected and opened. The designs and plans for the building were prepared by Messrs. Kelly & Beswick, architects. The estimated cost is about 2,000*l*. At present, the committees have been restricted to building the concert-hall, which externally does not present a striking appearance. The hall is 60 ft. by 30 ft., and 22 ft. high, with a capacious platform, a coved ceiling rising from a moulded cornice, with ornamental sunlights, and ventilation obtained by Watson's cupola vents. The acoustic qualities are said to be good. Mr. B. Crooke is the contractor, and this portion has cost about 700*l*.

Clunes.—Two tenders for the supply of pipes for the Clunes Water Commission have been provisionally accepted,—viz., the tender of Messrs. Walker & Co., ironfounders, of Ballarat, to supply 2,672 tons of pipes and castings, for 27,497*l*.; and the tender of Messrs. M'Ewan & A. Macfarlane, to supply 2,067 tons of pipes, at 21,108*l*. There is a difference in the size of the pipes, and the commissioners have reserved to themselves the power of finally accepting which of the two tenders they please.

Birregurra.—Christ Church is an edifice about to be erected in Birregurra. It will be built of bluestone, in the Decorated style, the windows having freestone tracery and mullions. The church will consist of a nave, 47 ft. long by 24 ft. broad. The chancel will be 16 ft. square. The tower will be 15 ft. square, and the height will be 57 ft. to the parapet. The size of the vestry is 12 ft. by 10 ft. The contract has been taken by Messrs. Trevana & Gubly, of Geelong, at 1,998*l*., without fittings. Mr. Terry, of Melbourne, is the architect.

Victorian Railways.—Tenders for the construction of the first four sections of the North-eastern Railway have been accepted, at the rate of 5,320*l*. per mile. As the work will be commenced almost immediately, there will be a demand for labour far in excess of what is at present available in the colony, and should Sir James M'Culloch succeed with his plan of making at least thirty miles of railway every year, this demand will be pretty fairly maintained.

MR. THOMAS HAYTER LEWIS, *Professor of Architecture, University College, London.*

TASMANIA.

Mona Hall, the residence of the Hon. R. G. Kermode, is a mansion illustrated in a recent number of the *Illustrated Australian News*, which states that it lies half way between Hobart Town and Launceston, about a mile from the high road. There is nothing remarkably picturesque in the site, but the house itself is quite like an English mansion of considerable pretensions to architectural display, with porch and corridor, turret, &c. There are pleasant gardens and greenhouses full of fruit and flowers, a goodly number of English trees, and a clear rapid stream running across the lawn, and forming beyond it a tolerably large pool, edged with willows of great growth. The proprietor is a Manxman by birth, and, it is said, must be the richest Manxman, not excepting the Goldie family, now in existence. His property on this spot is about 50,000 acres, and on it he has 20,000 sheep.

FREIBURG MINSTER.

The minster or cathedral at Freiburg in Breisgau is one of the finest (and was, until the recent completion of Ratisbon, the most perfect) cathedral in Germany. Although this church is of various dates and styles, there is a general harmony about the whole building, and its outline is so singularly beautiful, that this variety adds to its interest, without causing that want of unity which is generally so noticeable in buildings erected at different periods.

The earliest portions of the existing cathedral at Freiburg are the transepts and the lower stories of the towers, which rise on their eastern sides over the first bay of each choir aisle. The date 1152 is given to this part of the church, the style of which is late and rather rich Romanesque. Undoubtedly the whole church was once of the same style, but the original nave was burnt or destroyed in 1226, and was rebuilt as we now see it between the years 1230 and 1272. The lower portion of the great western tower is of the same date. The upper portion, or lantern, of the western tower (of which we give an illustration) is a work of the first half of the fourteenth century; but neither the exact date nor the name of the architect of this glorious work is known. The upper stories of the eastern towers and the spires with which they are crowned are probably of the same date. The present choir, with its aisles and beautiful ring of chapels surrounding it, was commenced in the year 1471, and consecrated in the year 1513. It was erected from the designs of Hans Neisenberger, of Gratz. The open porches at the ends of the transepts and the internal galleries in that portion of the church are works of the latter part of the sixteenth century. They are a strange but not unpicturesque jumble of Gothic and Italian architecture. This cathedral has escaped the fury of wars and revolutions, and has suffered less from modernisation than perhaps any other church in Germany; and thus it has been handed down to our time a perfect and most beautiful monument of the Middle Ages.

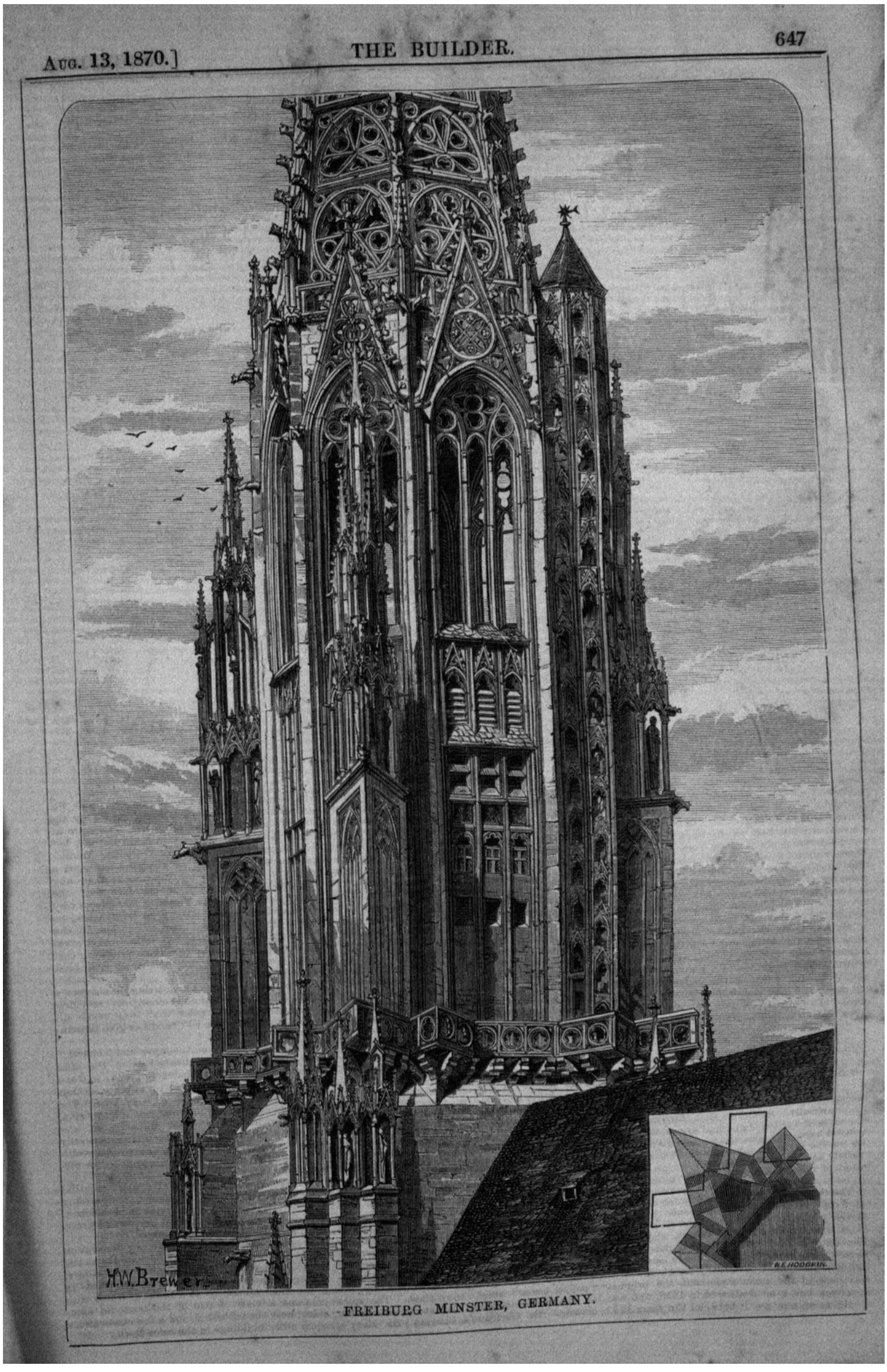
The exterior of this cathedral is hardly to be surpassed for richness and elegance. It possesses what is not to be found in any other cathedral in Europe,—three open-work spires. The western one, which is by far the largest, is 386 ft. high from the ground; the others are about 170 ft. each; so that when viewed at a distance they appear rather to form appendages to the western tower than separate spires. We think it cannot be denied that of all "open-work" spires in existence the western spire of Freiburg is by far the most beautiful; its outline is far more graceful than those of Strasbourg or Vienna, and its details are much earlier and purer than that of Chartres. The two open-work spires at Bourgos are ruined by the "pepper-boxes" which crown them. The spire at Thaun is too open, that at Meresberg too clumsy. St. Gertrude's, Louvain; St. Mary's, Würzburg; St. Mary's, Esslingen; and St. James's, Rothenburg, are nearly ruined by the size of their finials and crockets. The spire at Maria Zell is nearly as beautiful in outline, but is inferior in detail to that of Freiburg. Another reason why the spire at Freiburg has such a much more satisfactory appearance than any other open-work spire, is the fact that the tracery composing the Freiburg spire is so very thick and solid, that, when seen from below, no light is seen *through* the spire, and all the openings tell *dark* instead of light, which gives great richness to the spire without producing that weak birdcage-like appearance which is so fatal to Strasbourg and Antwerp.

The flying buttresses supporting the clearstory walls of the cathedral at Freiburg are very fine examples: it is singular that they nearly all differ in design. We will hereafter give illustrations of two of them.

The arrangement of the apse and "chevet," also demands notice. Each face of the apse embraces *two* chapels instead of one; and the flying buttresses are carried up in pairs, so that two support each angle of the apse. The arrangement is very original and picturesque, and overcomes the great difficulty of the radiating bays of the aisles which generally cause the chapel spaces to be of a greater width than is either necessary for convenience or picturesqueness.

The whole church is built of a most beautiful red stone, which has assumed a charming tint, and is overgrown with rich golden lichen. The roof is composed of glazed purple and green tiles, arranged in a lozenge pattern.

It is not our purpose to give any description of the interior of this beautiful church, as the interior, together with its fine old altars, pictures, and stained glass, is described in a previous volume of the *Builder*, which also contains a view of one of the beautiful fountains, near the cathedral, and a few observations upon other buildings in the same town.



FREIBURG MINSTER, GERMANY.

might have existed from certain, or (at times) very uncertain indications. Such accidents and excrescences, when they are the genuine whim of some ancient builder, are highly interesting, and often instructive; but when copied in cold blood by the modern restorer, lose all their value in this way, and are mere impertinences. It has been absurdly thought, especially by Mediæval amateurs, that part of the architectural effect of a cathedral is derived from the variety of styles and dates in different portions of the structure. A perfect architectural design must, above all things, exhibit unity of motive and style; and the men who designed our cathedrals would always have built them so, could they have always had the opportunity. They were forced by circumstances to leave them to be built piecemeal; and though this, I admit, confers additional historical interest on our cathedrals and large churches, architecturally they are fine in spite of, and not because of, this characteristic. In short, the true principle of restoration, I would contend, is to preserve the old building as you find it, by judicious repair and patching, as long as possible. Nothing can fully atone for the combined architectural and historical interest attached to a building that has stood for centuries; but if it once becomes necessary to rebuild bodily any large portion of the structure, then throw overboard antiquarian considerations, give us no sham archæology to annoy us and puzzle posterity to no purpose; but let architectural considerations have full sway, and seize the opportunity to render the building as nearly as possible what it must have been in the mind's eye of its original designer; regard the necessity for restoration as an opportunity providentially afforded for that purpose.

A Looker On.

IRON GIRDERS.

"L. S." inquires "what grounds there are for making the proportion of the top and bottom flanges of cast-iron girders different when the weight is on the top or bottom flange."

In replying to this, a glance at the general principles upon which cast-iron girders are made may perhaps be admissible.

Beams or girders of any kind are acted on by weights placed on them at stated places, inversely as the square of the distances of such places to the supports: thus taking a length of 6 ft. and another of 12 ft. from one common support to one girder, it will (supposing it to be equally strong throughout its length) support more on that place the position of which will, when squared, be less than the square of the other place having its distance from the nearest place of support greater. As, for instance, the one being 6 ft., which, when squared, is 36, and the other 12 ft., which, squared, gives 144, and 144 being four times 36, then, as these are to be taken inversely, the place that gives 36 will bear four times the weight that the place squaring 144 will do.

Now, commencing with the unit one, and taking a piece of iron, which shall be 2 ft. long between its supports, and 1 in. square, and say that will sustain at 1 ft. from its supports four tons (breaking weight); then the square of one is one. Then, suppose we want to support the same weight, at say 10 ft. from the supports, then the square of 10 = 100, and, as we have seen, the square of one is one; therefore, on the inverse principle, our 1-in. square iron will be of $\frac{1}{100}$ the necessary strength. Now, it also happens that the strength of beams increases as the square of their depths; and so, if we make the depth of our beam so that it shall square 100 times its present square, we shall, so far as strength is concerned, have effected our object, making in this the 1 in. deep, the unit; then the $1^2 = 1$, as before, and $10^2 = 100 = 100 \times 1$, which gives us our original strength, theoretically, but not necessarily practically; for it would require some means to give it lateral stiffness: this must be done by reducing the depth and increasing the breadth, so as to retain the same strength. Now, it is evident that if two separate beams of the same dimensions be placed side by side, they will bear twice the weight that one will; and, therefore, one beam equal in size to the two will bear the same weight, provided there be not a faulty place in such beam, which, were it to occur in one of the two smaller ones, could not reduce more than half the strength of the two taken together; and consequently a beam will increase in strength in proportion to its breadth. Now, as a beam increases in strength as the square of its depth, it will be found that doubling the depth of any beam must quadruple its strength; but to double its breadth only doubles its strength; then, not considering lateral action, any beam may be made twice as strong by doubling its depth and taking half its width away *ad infinitum*. This will not do practically, but as the proportion of the breadth to the depth is in a measure dependent on circumstances, no exact rule is invariably given, and in cast-iron girders the areas of the flanges may alone be given. If a girder should break, the lower part will be torn asunder, and the upper part will assist the tensile strength of the lower in proportion to its capability to resist compression. In cast iron this is said to be about six times as great as its power to resist tension; therefore it appears advisable to have in the lower part six times the metal there is in the upper: this would, at first sight, suggest a section to be, say, 7 in. deep and 1 in. wide at top, and 6 in. wide at bottom, being in form like a perpendicular section, through the imaginary apex of a truncated pyramid, but here we should have a great quantity of metal in the centre doing little or no service. It will be economy to remove it, and to have the usual form of top and bottom flanges,—the bottom being six times the area of the top; but then, this is to carry a load on the top, but when it becomes desirable to place the load on the bottom flange, then that flange would be liable to be broken off sideways from the web unless it would resist a pressure in that way greater than the strength of the girder; and when we come to consider that this flange will be acted on only in places, and in these with a corresponding increase of weight, we shall at once see that, to prevent portions of the bottom flange from being broken out at those places, an increase in depth or thickness of the bottom flange must be necessary; but, at the same time, it would appear probable that the counteracting influence of the two flanges would remain undisturbed by the weight being on the lower instead of the upper flange, provided that that lower flange remained uninjured by the weight; and if this be so, then it is probable that the differences in proportion of the flanges under the differing conditions of the weight being on the upper or lower flange is a question deserving of actual trial and experiment, to enable us to know what weight would really break a piece out of a bottom flange of say 2 in. in thickness; it would appear, however, that the lower flange, when carrying the weight, should first be made to sustain its weight, and the upper one made to correspond to the usual proportion, which would appear in that case to necessitate a larger area of section. But in using any formula we should remember that the varieties of iron are widely different in their properties.

Henry Ambrose.

AN APPEAL FOR THE BLIND.

Sir,—Will you kindly allow me space in your influential journal, in order to plead with the public on behalf of the blind, a class of whom it may be most truly said, that they need the help of a friendly hand to enable them to rise out of their present deplorable condition. Deplorable indeed, sightless, and poor, they for the most part spend their lives either in street-begging or in the workhouse; and this, be it remembered, not voluntarily, but because no opportunity is afforded them of doing otherwise.

Speaking from experience, I can say with confidence, that the blind will most joyfully grasp a helping hand, if held out to them, since their earnest desire is to be rescued from the state which I have described. My experience is derived from many years' acquaintance with the Association for Promoting the General Welfare of the Blind, 210, Oxford-street, W., and 127, Euston-road, N.W., the objects of which, to quote from the printed rules, are—

"To afford employment to those blind persons who, for want of work, have been compelled to solicit alms, or who may be likely to be tempted to do so; to cause those unacquainted with a trade to be instructed in some industrial art, and to introduce trades hitherto unpractised by the blind. Also to support a circulating library, consisting of books in various systems of relief print, which shall be free to the blind poor; to collect and disseminate information relative to the physical, mental, moral, and religious condition of the blind; and to promote among individuals and institutions seeking to ameliorate the condition of the blind, a friendly interchange of information, calculated to advance the common cause."

The committee at whose request I venture, sir, to trouble you with this letter, have carried out these objects as far as the means at their disposal would permit; 110 blind men and women are at present regularly employed; others have work occasionally. Classes for instruction in tangible reading are held in different districts in London, at which the teacher, a sighted person, also reads aloud. These classes are attended by many persons. Some, again, are engaged in selling goods as agents for the Association in question, and others, who are unable to work, receive pensions; in all 176 blind persons are benefited by this society.

During the year 1869, the Association paid about 2,500*l.* in wages and pensions to the blind, but by far the greater part of this sum consisted of wages for work done by sightless persons. As there are more than 250 applicants, the committee are most anxious to hold an election during the present year; but not only will this be impossible, unless increased funds be forthcoming, but the good now being done must be lessened if the public do not speedily aid the undertaking.

Much has been said of late of the evil effects of indiscriminate almsgiving, and of the necessity of organising charitable relief. Probably much good may be hoped from any such well-directed efforts, but may I suggest that any institution of which the special aim is to diminish the amount of pauperism in any particular class is especially deserving of public support? Such has for many years been the object of the association in question, and many a blind person has been rescued, and others saved, from a course of street begging, or from entering a workhouse, as shown by the following instances:—A young man, having been educated in two blind schools, was obliged, for want of work, to beg through the country with his wife, also blind, and three children. He now works regularly, and receives from the association a considerable amount weekly, earned by his own industry. Another, who had been long an inmate of a workhouse, is now most usefully employed. A third, totally deaf and blind, who was entirely dependent upon two sisters who lived by their needle, has been taught brushmaking, and now regularly earns 18*s.* per week. Similar instances might be multiplied; but on this head I will only add that, whenever it is possible, this association acts upon the principle of prevention being better than cure, and is especially glad to save a blind man or woman, either from entering a workhouse or from a life of vagrancy.

The committee most earnestly appeal for aid, both in order that they may be spared the painful alternative of reducing their expenditure, and also that they may be enabled to elect some from among the numerous applicants now waiting either for employment or instruction in trades. The committee trust that such an appeal will not be in vain, but that the public will largely aid them in their endeavours to diminish the numbers of blind beggars by putting within reach of the blind the means of earning their own living.

Regular custom for the brushes, baskets, &c., made by the blind workpeople is of essential service. The goods are for sale at 210, Oxford-street, W., and 127, Euston-road, N.W. Subscriptions and donations are also at present urgently needed, and will be most thankfully received by the treasurer, H. Sykes Thornton, esq., at 20, Birchin-lane, E.C.; by the Rev. C. J. P. Eyre, 20, Upper Wimpole-street, W.; and by the lady president, Miss Gilbert, 210, Oxford-street, W. Permit me now to express my earnest hope that the public will generously strengthen my hands, and those of the committee, and will thus enable us to extend, instead of being compelled to reduce, our operations. The good effected by enabling the blind to help themselves is a great public benefit, while it is also an inestimable blessing to the sufferers themselves.

Elizabeth Gilbert.

AN ALLEGED CONTRACT AND FALL OF A BUILDING.

At the Ashbourn County Court, before Mr. G. Russell, judge, the case of Dowdswell *v.* Fisher has been tried. This was an action for damages alleged to have been caused by the fall of a building which defendant (as was alleged) had contracted to build for plaintiff. Plaintiff said that defendant was engaged to build the place for him, whereas he only sent two men to assist, and did not go near the place himself. He was to go to a certain party for what timber he required by plaintiff's order. Four arches had to be turned and centres fixed in them, but only one centre was put in, and consequently three of the arches gave way, as plaintiff alleged, through proper skill not being used in turning the arches and fixing the centres. He estimated the loss at 30*l.* or 40*l.*—Defendant said that he was not engaged at all by the plaintiff, who, however, called upon him in 1867, and asked him if he could do the work, and upon his replying that he had no time to attend to it, he (plaintiff) asked Fisher if he would supply him with a bricklayer. He said he would, and sent him one. He also sent him a second. Plaintiff never told him to go to Birch's for timber. Nothing had been said to him about it till the centres were made. It was the custom to have a centre for each arch, for without them they would not be safe. It was the duty of the joiners to fix them in. He had never seen a bricklayer fixing them, except in little buildings they might do so. He was satisfied that the joiner was responsible and not the builder.—Witnesses were called on both sides, and, after a patient investigation, the judge decided in favour of the defendant.

INFRINGEMENT OF PATENT.

NEWTON *v.* HALBARD.

This was a patent case, tried at the Manchester Summer Assizes. The plaintiff, John Newton, civil engineer, Manchester, charged the defendant, Philip F. Halbard, Burton-on-Trent, with an infringement of letters patent which he had taken out for an improved gully or street stench-trap for sewers and drains. The infringement complained of was "making, selling, and using traps similar to those of the plaintiff." The defendant denied the infringement, and alleged that there was no novelty in the plaintiff's patent.

Mr. Manisty, Q.C., and Mr. Aston were for the plaintiff; and Mr. Holker, Q.C., and Mr. Edwards for the defendant.

Evidence having been taken on both sides, the judge said there were two questions for the jury to consider, first, whether the invention was new; and second, whether the defendant had infringed it. They had to consider whether the invention was new in its structure or in the arrangement of its parts, so as to become more beneficial to the public than any other that was known before. If it was new in that sense, then it was a proper subject for a patent, and if they were satisfied of that, then they would find

for the plaintiff on that issue. If it was not new in that sense, there was an end of the case. If it was, the jury would then compare Mr. Newton's stench-trap with Mr. Halbard's, and say whether the two were alike or different in construction and plan.

The jury gave a verdict for the plaintiff on both issues, stating that they were agreed that the principles of Mr. Newton's plan were such as to make it a new invention, and advantageous to the public; and that Mr. Halbard's was inferior, but differed so little in its mechanical arrangement as to make it an infringement of Mr. Newton's patent.

FALL OF A CORNICE IN NEWCASTLE.

Mr. Christie writes to question the correctness of an account in the *Builder* of the 23rd ult. of an accident which occurred at a new block of buildings in course of erection in Gallowgate. He says:—

"It is not true that the 'foreman receives his instructions from the printer and stationer for whom the building is being erected.' On the contrary, there is an experienced clerk of works employed on the building, appointed by, and directly responsible to the architect who prepared the plans. Whether proper instructions were given him, and, if proper, whether they were carried out, is another matter; but the 'printer and stationer' referred to took no supervision of the building (if by any perversion of language it can be so called), other than supplying the requisite funds to carry it on."

STATE ARCHITECTS.

Sir,—The result of recent deplorable acts as to the architect of the Houses of Parliament is this, that instead of an architect being appointed to carry out the proposed alterations and additions to the Houses of Parliament, an engineer has been called in, and the late architect's designs and drawings are availed of. It is not my purpose to pass censure or comment on any military man or engineer, but it is distressing that in a country like England you have no established State architect attached to the Crown, as was formerly the case as regards Sir C. Wren, Inigo Jones, Vanbrugh, &c., although you have distinguished men attached to the Royal Academy. How different is this from France, the German States, and elsewhere. We are living, it is true, in a more enlightened age than fifty years past, and the study of the fine arts is better cultivated than it has been for the last century, and the step now taken by the Royal Academy is a step in the right direction, whereas architecture as an art has been so much neglected.

The laudable and affectionate undertaking of her Majesty in the Royal Mausoleum at Frogmore, convinces me at once that had we a palace worthy of its name, neither her Majesty nor his Royal Highness the Prince of Wales would be wanting in good taste to patronise every branch of art; but so long as the parsimonious feeling exists of dispensing with what is just and right, and the place of an architect is supplied by a military engineer or clerk of the works, so long will there not be any proper encouragement given to art.

An Old Subscriber.

THE BELLS OF THE CHURCH OF ST. NICHOLAS, LIVERPOOL.

I am glad to find that "An Architect," whose communication on "Bells at Liverpool" appeared in the *Builder* recently, takes a lively interest in the subject. But, in very properly correcting the error of another writer, he has himself made a mistake. The present twelve bells at the parish church of St. Nicholas were not supplied partly in 1628 and partly in 1725, as your correspondent intimates. They were all made in the present century.

As a most lamentable catastrophe associated with bell-ringing, occurred at this church about sixty years ago, the following particulars, including a brief history of the bells, may be acceptable:—

It appears that a peal of six bells—weight of tenor, 15 cwt. 1 qr. 12 lb.—was placed in the old tower of the church in March, 1725, where they remained in use for many years. But on Sunday, February 11, 1810, during the *ringing* of that peal for morning service, the spire suddenly fell with a tremendous crash into the body of the church, and thus upwards of twenty persons were killed. The fall of the spire was accompanied by that of a portion of the tower containing the bells. It is, I think, important to add, that the tower was a piece of patchwork. The foundation, it is said, was at least as old as 1360, and upon this foundation the upper part of the tower and a lofty spire had been built in the year 1746.

A new tower was subsequently erected, and furnished with the present peal of twelve bells in the key of C, the weight of the tenor being 41 cwt. These bells were cast in 1813, by William Dobson, of Downham, Norfolk, and severally inscribed as follows:—

1. [This bell had no inscription.]
2. Give no offence to the Church.
3. My voice I'll raise the Lord to praish.
4. W. Dobson, Fecit, Downham, Norfolk, 1813.
5. Cast by W. Dobson, of Downham, Norfolk, A.D. 1813.
6. Our voices shall with joy resound.
7. Prosperity to this Town. W. Dobson, Fecit, 1813.
8. My song shall always be of the loving kindness of the Lord.
9. I will give thanks unto the Lord.
10. Blessed is he that temperath mercy with justice. Saml. Staniford, Esq., Mayor. Thos. Hinde and Thos. Case, Bailiffs.
11. George Nelson and John Carter, Churchwardens; John Swainson and Chas. Clements, Junr., Sidesmen; Anthony Black and John Aldersey, Overseers.
12. May all that go to the silent Tomb, Be crown'd with Glory in the World to come.

The new bells were opened by fourteen members of the Birmingham and Sheffield societies of change-ringers, with a fine "touch" of 3,000 grandsire cinques, on the 4th of June, 1814.

Thomas Walesby.

CHURCH-BUILDING NEWS.

Great Ashfield.—The parish church has been renovated and reopened. The work already completed has been done by Mr. Simpson, of Stowmarket, under the direction of Mr. Jackaman, of Bury; and its most important feature is the almost entire rebuilding of the chancel, in which the original design has been generally adhered to. Lord Thurlow, the lay impropriator of the rectorial tithes, superintended this portion of the work himself, and is, we believe, the designer of the new east window, of three lancet-shaped lights, which supersedes one in a different style, but accords to some extent with those on the south side of the chancel. A new roof of pine, at present unstained, has been placed on the chancel in place of one which had fallen into such a state of decay that repair was impracticable. The embattled cornice is, however, retained. On the north side of the chancel a narrow lancet window, filled with coloured glass, has been inserted; and on this side also a vestry has been erected in line with the north aisle, at the west end of which a space has heretofore been enclosed for the use of the minister, &c., but this has now been thrown into the body of the church. The vestry is entered from the chancel, and is lighted by three windows, on the east, north, and west, the latter having been one of the exterior windows of the church prior to the recent alterations. The vestry (which is roofed with some of the old timber from the roof of the chancel) contains two parish chests, the more ancient of which is of unusual dimensions, being more than 6 ft. in length. The south wall of the nave had departed considerably from the perpendicular, and it has therefore been entirely rebuilt from the chancel arch to the south porch. The whole of the interior stonework has been cleaned of its many coats of whitewash, and many of the windows have been newly glazed, but there appear to be no remains of ancient glass. The pews that remained in the interior of the church, some of them of ponderous dimensions, have been cleared away, with other incongruous lumber, and open benches (a few of them of oak and the rest of pine) have been erected in their stead. The organ, which up to the present time has blocked up the entrance to the tower, now stands in the south-west angle of the nave, between the porch and the tower arch. The tower, which contains a peal of five bells, is thus thrown open to the church, and a decorated window, of bold tracery, is disclosed to view. The floor of the nave and chancel (without the altar-rail) is of common brick, and uniformly level. The roof of the chancel is covered with red tiles; the roof of the nave, which is covered with lead, did not, we believe, require repair. The churchyard has been levelled where necessary, the paths are newly gravelled, and the ground adjacent to the church reduced to a uniform level. The expense of the restoration (leaving out of the question such portions thereof as are the result of private munificence) has been met partly by a voluntary rate on the parish, partly by Mr. H. Milbank, and partly by Lord Thurlow.

Conington, Cambs.—The parish church has undergone a reparation, and been re-opened for divine service. The restoration (with the exception of the chancel) is confined to the interior. Commencing at the east end, the chancel has been entirely rebuilt, and on the extreme eastern end is a stone cross—the *fac simile* of one found in the walls of the old chancel. All the outside stone or rubble was formerly the filling up of the interior wall of the chancel. The new chancel (which has been widened 2 ft.) is, in point of fact, intended as the nucleus of a new church. This part of the restoration is adorned with stained glass windows by Wailes, of Newcastle. The east window has three lights, and the representations are the Crucifixion, Resurrection, and Ascension. Another design is intended to picture Christ walking on the sea. The Bishop of Grahamstown presents a stained window, representing Christ blessing little children. The other is a scrap window, which is explained by the inscription, "Vitrum antiquum hujus ecclesiæ," encircled in the centre of each light. The roof of the chancel is of stained deal. On the south of the chancel, in a recess, stands a small organ. The communion-table was executed by Messrs. Rattee & Kett, of Cambridge, as likewise the reredos, which is made of alabaster, and designed by Mr. W. M. Fawcett, of Cambridge. The oak seats, communion-rails, and choir benches, were also the work of Messrs. Rattee & Kett. The flooring of the chancel is of plain tiles, with the exception of that portion in front of the table, which is composed of encaustic tiling. The nave is the next feature, and to complete the work it is thought that the facing of the outer walls ought to be removed and supplied by rubbling, so as to correspond with the remainder of the structure. The nave has been newly floored, partly reseated with oak benches, and partly with chairs, and the walls have been renovated. An organ gallery, which formerly stood at the west end, hiding the western arch, has been cleared away, and other alterations made as to the means of ingress. This has brought to view two marble monumental tablets. A feature of the nave is the display of monumental marble tablets of which there are eight, the most remarkable being that by Gibbons, to the youthful grandson of Sir Robert Cotton. The restoration has entailed an expense of about 600*l.*; but 500*l.* excluding the windows. A considerable sum is yet needed to complete the seating, and (what is contemplated) to replace the nave roof. The architect for the restoration has been Mr. W. M. Fawcett; the builders were Messrs. Bunting & Son, of St. Ives; whilst Mr. Wrighton, of Godmanchester, did the stone work.

Hailsham.—For some time past the vicar of this parish, the Rev. G. G. Harvey, has been making great efforts to raise the funds necessary to completely restore the parish church, which had gradually fallen into a sad state of dilapidation. Last year, with the assistance of others who have also devoted themselves to the good work, the rev. gentleman succeeded in collecting the sum of 1,000*l.*, which has already been laid out on the work. The church consists of nave, aisle, north and south chapels, chancel, &c., with a tower at the west end; but it is evident from the present state of the edifice that a very large sum of money will be required to restore it to the condition in which it existed about four centuries ago. At the present time the tower is blocked up, and the roofs of the nave, chancel, and chapels, &c., are all plastered. The traceried heads of all the north aisle windows in past years were destroyed, and a lean-to roof erected; possibly the walls were in such a bad state that all that portion was taken down and covered over, regardless of everything except expense. The old south aisle was even in a worse condition, being merely brick walls, with huge square openings, filled in with wood frames and glazed. The committee have carried out the restoration of the south aisle and porch; the walls of this part are erected with Eastbourne local stone, and pierced with No. 3 three-light perpendicular windows; the walls are covered with an open-timbered tie-beam roof, with battlemented cornice, and match boarded, the whole stained and varnished, and externally is covered with milled lead. The porch is carried out with a feeling for old work. The architect proposes that the tower should be opened, all the sittings re-arranged, the roof raised, and coupled clearstory windows formed, the chancel, which is now nearly filled with sittings, made in unison

with other work, and the lath and plaster partitions, which at present disfigure some of the arches, give place to oak screens. The work has been carried out from the designs of Mr. H. Eucan Rumble, architect, Eastbourne, and under his constant personal supervision, has been done by Messrs. Avis & Roe, builders, Hastings. It is estimated that to thoroughly restore the edifice, according to the plans of the architect, the further sum of 2,000*l.* is still required to be laid out.

Ipswich.—A meeting of the parishioners of St. Margaret's, Ipswich, has been held to consider what steps should be taken with reference to the tower of the parish church, the upper portion of which has been found in a very bad, and even dangerous, state. It was resolved to obtain the money requisite by borrowing, repaying by instalments from the offertory. The cost will be about 310*l.* in all. A building committee was appointed.

Dorking.—The chancel of St. Paul's Church has been re-opened for divine worship, after having undergone a change in its architectural and decorative appearance. A new arch has been erected between the chancel and nave, with mouldings and foliage, supported on Devonshire marble columns with foliated capitals. A new east window of the Decorated period has been substituted for the one removed, containing five lights. The north and south windows have all moulded internal arches supported on stone columns in lieu of the plain splayed jambs. The reredos is in Caen stone, supported on Devonshire marble columns, with foliated caps. The internal walls are all ashlared with polished alabaster. The pulpit is carved in English oak, supported on a base of Caen stone, with carved capital supported on a centre column of Caen stone, surrounded by four smaller columns of polished marble. The reading-desk is in English oak, with carving in relief. The altar railing consists of a series of arches, supported on spiral shafts terminating with foliated caps; this is constructed of English oak. The floor of the chancel has been laid with Maw's encaustic tiles. The roof has also undergone some improvements, by having a new perforated carved wood cornice at the top of the wall plate, and several cusped wind braces have been introduced. The stained glass is by Clayton & Bell. The east window consists of five lights, with tracery of Decorated character, the five principal openings containing representations of the Nativity, with magi and shepherds in the act of adoring the infant Saviour, while the upper or tracery lights are figures of angels, and ornaments of a suitable character. The three small windows contain the Raising of Jairus's Daughter, the Agony in the Garden, and a figure of St. Paul (the patron saint of the church) respectively. The existing old deal stained seats looked very poor by the side of the oak work. The entire cost of the work, somewhat exceeding 2,000*l.*, has been defrayed by Mr. Thomas Stilwell, of Trashurst. The architect was Mr. Benjamin Ferrey, of London; the builder, Mr. William Shearburn, of Dorking.

DISSENTING CHURCH BUILDING NEWS.

Beaumaris.—An English Presbyterian chapel, the cost of which has been mainly defrayed by the Calvinistic Methodist Home Mission Fund, has been opened here. The building stands upon a site in Church-street, adjoining the market, given by Sir Richard Bulkeley, bart., who also was a liberal contributor in money to the cause. The ground upon which the chapel stands has historical interest, as the site of the old palace (Hên Blâs) which, until Baron Hill was erected, was the residence of the Bulkeley family, having been built about the year 1496. This relic of antiquity having become in a very dilapidated state, was pulled down about a year since. The chapel was designed and carried out under the superintendence of Mr. R. G. Thomas, of Menai Bridge, architect, and the style of architecture adopted is Early English. The walls are built of rubble work, lined internally with bricks, and plastered; faced on the outside with Penmaenmawr stone; all the dressings being of Bath stone, from Messrs. Randel & Sanders's quarry. The carving was done by Mr. Robert Evans, of Menai Bridge. Externally there is a dwarf wall, with stone coping and light iron railing to the front and one side. The east end of the building, which fronts to Church-street, has an entrance-porch in the centre, over which is a large four-light window, having foliated caps and bases, and one single-light window on each side of the porch: the sides are divided into four bays by buttresses, with a two-light window in each bay, with moulded labels and carved bosses. The gables are surmounted with iron Mediæval finials. Internally, the dimensions are 47 ft. by 28 ft., and will seat about 200. The roof is divided into four bays. The ceiling, which is of wood, is diagonally framed with moulded ribs or pendant moulds, planted on, and follows the curve of the inner principal. The seats, which are of pitch pine, are open, with low sloping backs, and divided by a broad aisle, in which loose benches are placed. The windows are glazed with rolled plate glass, of greenish tint, supplied by Mr. Forrest, of Liverpool. The porch, which is in the east end, is 13 ft. by 5 ft., and is paved with Messrs. Muir & Co.'s encaustic tiles. The cast-iron work was supplied by Messrs. Macfarlane, of Glasgow, and the gas standard and ornamental wrought-iron work by Mr. J. W. Dovey, of Manchester. The contractor for the whole of the works was Mr. John Pritchard, of Gaerwen, the mason being Mr. John Jones, of Beaumaris. The cost of the building and wall in front and side was under 900*l.*

Great Yarmouth.—The new church recently erected by the Congregationalists at the entrance to Middlegate-street has been formally opened. The total cost of the building, with furniture, adjoining land, &c., was 3,515*l.* A balance of 457*l.* 14*s.* 6*d.* has to be provided, after mortgaging the building for 1,000*l.* The pulpit was presented by the architect, Mr. J. T. Bottle. The contractor is Mr. William Hood, of Norwich, the sub-contractors being Messrs. Burgess, Dumbleton, Sargeson, and Barge, all of Yarmouth.

Low Moor.—The foundation-stone of a Primitive Methodist chapel has been laid at Low Moor. The edifice will be in the Italian style of architecture, from the designs of Mr. Mark Brayshaw, at the estimated cost of about 2,000*l.*

Reading.—The foundation-stone of a new Baptist chapel has been laid in Tappenden-street, by the Mayor. Mr. C. G. Searle, of London, is the architect. The site is on the eastern side of the street, and comprises a frontage of about 50 ft., and a depth of nearly 100 ft. The foundations of the outer walls are in course of construction, so that the proportions of the building could be easily seen. It will seat about 640 persons. The total cost of the erection will be 2,247*l.*, and of the site, 365*l.* If galleries are erected, 150*l.* more will be required for the erection.

Walthamstow.—The memorial-stone of the new Congregational church, Marsh-street, Walthamstow, has been laid. The church will cost about 4,500*l.* Most of the money is promised or paid.

Swansea.—The Zoar Chapel, just erected by the Welsh Congregationalists, at the top of High-street, Swansea, has been opened. The style of architecture adopted is Grecian. The architect is Mr. John Humphrey, of Morriston: and the builders are Messrs. Thomas, Watkins, & Jenkins, of this town. The total cost of the whole building is about 2,400*l.* The interior length of the chapel is 63 ft.; width, 36½ ft.; and it will seat about 1,000 persons.

SCHOOL-BUILDING NEWS.

Shawfoot (Carlisle).—The foundation-stone of Shawfoot Schools has been laid. The schools are to be built from a design by Mr. J. Stewart, of Carlisle, architect. The schoolroom, classroom, and master's house will form one line of building facing the road.

Hackney.—The memorial-stone of a school, which has just been erected in the rear of Grove-street Chapel, South Hackney, has recently been laid. From the report of the building committee it appeared that the sum of 210*l.* 12*s.* 5*d.* had been "lying in a napkin" for some time, when, at a church meeting held in November last, certain friends were nominated to act with the pastor, teachers, and committee, for the purpose of erecting Sunday and day schools. According to the estimate of the architects, Messrs. Searle & Son, accommodation had been provided for 350 scholars. It was estimated that the entire cost of carrying out the work would be 520*l.* towards which 273*l.* 8*s.* have been given or promised.

Highgate.—Miss Burdett Coutts has laid the foundation-stone of the National Schools for St. Anne's, Highgate Rise, the site for which she had herself presented to the promoters.

Leek.—A new boys' school and lecture-room is about to be erected in connexion with St. Luke's Church, and the existing school-buildings will afterwards be used for girls and infants only. The total outlay will be about 1,200*l.* Mr. Sugden, of Leek, is the architect. The corner stone of a new building, intended to serve the double purpose of a ragged school and mission chapel, was laid in Leek on the 30th ult. The design is of plain Early English character, and to be executed in red brick, with stone dressings. The building will be two stories in height, the lower story for school purposes, and the upper for the chapel, the latter with a gallery at one end, and class-rooms under. The chapel will be mainly lighted from the roof, which will be open for about two-thirds its height, and a platform will be substituted for the usual pulpit. The works are being done by local builders.

Islington.—The foundation stone of St. Bartholomew's New Schools, Shepperton-street, New North-road, have been laid by the Earl of Harrowby. The schools will be Gothic in architecture, with a bell turret, and will afford accommodation for between 400 and 450 children. There will be a class-room in the basement, 17 ft. by 33 ft., and a private room adjoining, 17 ft. by 12 ft. Over this class-room will be the boys' school-room, 35 ft. by 45 ft., and at the top, the girls' school-room, of similar dimensions. There will be a separate entrance for boys and girls, one on each side of the building. The contract price for the building is 1,800*l.*, but with furniture it is estimated to cost 2,087*l.* 10*s.*, of which 1,380*l.* have been subscribed. The schools will be ventilated by air flues below the floors, and for heating the place the apparatus of Messrs. Pearce & Co. will be used. The church of St. Bartholomew, with which these schools are in connexion, was consecrated about three years ago. Mr. Clare is the architect; Messrs. Hill & Son are the builders.

FROM SCOTLAND.

Braemar.—The new church at Braemar, which was commenced about a year ago, has been opened for divine service. The cost of the church and spire is about 2,212*l.*, but the subscriptions are about 1,000*l.* short. The building is in the Early English style, cruciform in plan, with semi-circular apse, north and south transepts, north and west porches, and tower and spire. The length of the church inside is 84 ft.; width, 31 ft.; and breadth across transepts, 44 ft. A small gallery is placed across the west end; and the church and gallery will seat 450 persons. The nave and transepts are separated by double arches, supported on columns of polished red granite, with grey granite moulded capitals and bases. The apse is divided from the nave by a moulded arch springing from ornamental brackets in Parian cement. A carved pulpit is placed at the entrance of the apse, with a Communion-table and railing in front of it. The sittings are in the latest style, with low sloping backs. The ceiling is wagon-headed in form, and divided into panels, each of which is tinted of a light cream-colour, with a stencilled border in colours. The windows are simple trefoil-headed lancets, filled with cathedral glass, and with a border of dark red stained glass. The tower and spire, which together rise to the height of 112 ft., contain vestry and belfry. Above the belfry the spring of the spire is marked by four granite pinnacles and four gables, containing the clock-faces. The materials used in the construction of the building are blue "trap" and grey granite, a contrast in colour being thus obtained. The church has been fitted with a patent hot-air apparatus; and arrangements are made, so that in winter the greater portion of the nave may be shut off. The architect is Mr. Robert Lamb, of Darlington.

Books Received.

A Treatise upon a Simple Method of Constructing Fire-Proof Buildings; also showing how to Build without Timber or Girders of Iron. By G. Burchett. London: Houlston & Sons. 1870.

Rather more promise than performance. Mr. Burchett complains that in all the fire-proof schemes in vogue, the immense expense connected with their construction, together with the great weight thrown upon the walls, prevents their application to any common build-

ings: that the use of iron girders and joists filled in with brickwork has been found to prove very insecure, and when filled in with concrete, far too heavy and cumbersome for general use. Further, that all the various combinations of the above materials used are more or less cumbrous, not to say clumsy,—and most costly.

His own scheme, as he calls it, is,—

"To turn a brick or tile arch under every floor, impervious to fire, and to form the staircases upon segmental arches springing from the floor-arch up to the walls, or to the next floor, as may be required, according to the size or plan of the building. In detail, for a first-class house, I propose to arch over the basements either in the way I recommend for the other floors or in the old-fashioned way with groined arches.

The other stories arch over with a graceful, semi-elliptical curve, springing where practicable from each of the walls in the same way as a coach-head trimmer."

The best materials at hand for this, he considers, are the common vertically-perforated bricks; laid flatways, or, better still, hollow terra-cotta or stoneware, in two plates with ribs, and the lower plate perforated, jointed with Portland cement; and in large rooms one or more courses of plain tiles on the top.

Where boarded floors are desirable, "the arches may be turned, as before described, and the spandrels levelled out, well tied into the walls, and built up with them, so as to make the arch as much as possible like a bracket from each wall;" and then small scantlings may be laid to attach the floor-boards to. When speaking of forming wholly fire-proof buildings, he suggests the use of iron ties across the structure, 2 in. to 3 in. wide, by from ½ in. to ¾ in. thick, placed immediately *upon the arches* (?).

Very few of our readers will need telling that there is nothing new in what is good of this plan, and that the objections to the other modes mentioned by the author apply against his; but these ought not to be fatal: the walls should, if needed, be prepared for the strain that will be put on them, the extra height required to admit of the vaultings should be given, and the increased cost incurred; and we notice his pamphlet to keep before the eyes of those about to build the necessity for improving our ordinary mode of building, in order to avoid the now too common disasters of fire.

VARIORUM.

"Laws affecting the Public Health in England. By Henry W. Rumsey, M.D." In this reprint from the *British and Foreign Medico-Chirurgical Review* of July last, Dr. Rumsey gives a sketch of the statutes which apply more or less directly to the health of the community. He divides these laws into three great classes;—1st, special and municipal, having for their direct object the improvement of the public health in towns and districts; 2nd, Social and Industrial, having other primary objects, yet determining, in many respects, the methods of sanitary administration; and, 3rd, Medical and Dietetic, applying to the profession itself, to particular diseases, and to other matters of state medicine. The summary, though very brief (only eleven pages), is a useful one to all interested in sanitary progress.

Miscellanea.

Condensed Telegraphic Messages.—It is stated in *Chambers's Journal* that Mr. J. Gall, of Kingston, Jamaica, a son of Mr. James Gall, of Edinburgh, publisher, to whom reference was lately made by a correspondent in the *Builder*, has invented a method of condensing telegraphic messages, and at the same time of keeping their purport secret from all persons except the sender and receiver. He has drawn up a lexicon of telegraphy, and any one wishing to send a message has but to choose from his lexicon a single word, according to the nature of the message. In this word he conveys his whole meaning to his friend or correspondent; but to the telegraph clerk, or any one else, it is an impenetrable secret. The combinations are so numerous that Mr. Gall himself would be unable to discover the key which other persons had agreed to use out of his lexicon. When a long message can be contained in one, two, or three words, the saving will be great as regards both money and time. The pre-arrangement of messages is described as remarkably easy.

The Meat Market Clock.—The clock in the central roadway of the New Meat Market, Smithfield, was made by Messrs. Thwaites & Reed.

A House Built by One Man.—The *South London Press* tells a story of perseverance. About four years ago an eccentric personage, who follows the pursuit of bird-catching, purchased a small plot of land on the eastern side of Nunhead Cemetery. Here he resolved to build a good-sized six-roomed brick house with his own hands. He at once set to work, and, strange to say, has nearly finished his task. He has been his own architect, his own bricklayer, his own labourer, his own joiner, his own plumber and glazier, and, what is still more strange, has built the house without one particle of scaffolding, and even carried his own bricks from the maker by the armful as he was able to afford them. The work is said to appear very substantial, and to do him great credit. During the operations he has been living in a small brick hut, built by himself on the plot at the onset, in company with a little son and a loquacious parrot. He probably thought himself a second Crusoe on an uninhabited island, and behaved as such.

Newcastle Antiquaries.—A meeting of members of the Newcastle Society of Antiquaries was held on Wednesday evening, in the library of the Old Castle, Dr. Bruce presiding. Mr. Longstaffe intimated that he had purchased an old map of the county of Durham, on which occurred an old name—Werewickshire, from which he gathered that a certain portion of the county had formerly been called by that name. Dr. Bruce stated that another altar had been found in Maryport, and it was dedicated to Vulcan. It was peculiar, inasmuch as it was the only altar in Britain which was dedicated to that deity. It was further peculiar, because, instead of the name of the deity to whom it was dedicated occurring first, it occurred last. He supposed that would be because Vulcan was considered a minor or inferior deity. A stone of peculiar character was also found at the same place. He had heard subsequently from his correspondent at Maryport that another altar had been found.

Stamp Duty on Leases.—An Act of Parliament has just been printed to declare the stamp duty chargeable on certain leases. The law has been altered in consequence of a decision in the Court of Exchequer, to which attention was first drawn in our pages. It is provided that no lease already made or hereafter to be made for any consideration in respect whereof it is chargeable with *ad valorem* stamp duty, and in further consideration either of a covenant by the lessee to make, or of his having previously made, any substantial improvement of, or addition to, the property demised to him, or of any usual covenant, shall be deemed to be, or to have been, chargeable with any stamp duty in respect of such further consideration.

Workmen's Dwellings in Holland.—An experiment, which appears to answer, has been tried by some of the companies for building improved dwellings for the working-classes, viz., that of introducing the "flat" system, by which the lower portion of the house is occupied by one family, with exclusive use of a garden on one side of the house; while another family tenants the upper story, which is entered by an outer staircase on the other side, and entails the garden on that same side. As the occupants of the lower part have to go outside their plot, round the corner, and up the staircase, if they wish to communicate with their topmost neighbours, it certainly gives a far greater degree of privacy than if they were simply next door.—*Food Journal.*

Working Men's Club and Institute Union.—The forty or fifty metropolitan working men's clubs and institutes which are comprised in the Union had their annual meeting on Monday last. On the representation of Mr. Herbert Praed, the Marquis of Salisbury offered the use of Hatfield-park for the purpose of a general pic-nic, adding to the offer an invitation to such as chose to inspect the fine Elizabethan mansion. About 1,000 of the members of these clubs and institutes availed themselves of the facilities kindly afforded.

Royal Gallery of Illustration.—We see with great pleasure that this is not to be the last season at this popular place of amusement, but that Mr. Reed, having unexpectedly been enabled to renew his lease, he and Mrs. Reed will appear in a new entertainment in November next. The public would have sadly missed the agreeable evenings passed in Regent-street for many years.

The Spade in Defensive War.—Mr. Edwin Chadwick, C.B., has been recalling the public attention to a subject heretofore treated of in the *Builder*. This he does in a paper on "What Art and Science in the new Arms of Precision give to Defence against Attack in War." The paper is printed in the *Journal of the Society of Arts*. Mr. Chadwick is of our opinion, that the importance of the spade is greater than ever in connexion with arms of precision; and as for the bayonet and sword, they may be thrown away. In America it is proposed that soldiers should carry spades in place of bayonets. Neither the French nor the Prussians, however, are as yet very favourable to the use of the spade in defensive warfare. They still dislike to "turn their troops into armies of sappers." The time anticipated by the *Builder*, however, is evidently at hand, when bayonets will be turned into spades, preparatory, doubtless, to the happy time when spears shall be turned into pruning-hooks.

Berks Archæological Society.—The annual excursion of the members of this society took place on Thursday, the 28th ult. They started from Marlow-road to Marlow, where a boat was in readiness to convey them to Medmenham Abbey; on the way a visit was paid to Bisham Abbey, the seat of Mr. G. H. Vansittart, which is said to have been formerly the residence of Princess Elizabeth, and the burial-place of Earl Warwick. Lady Place Ruins, formerly in the possession of Lord Lovelace, were next visited. On arrival at Medmenham, the Abbey was inspected. Danesfield, the seat of Mr. C. R. Scott-Murray, was also visited, and its Gothic chapel and the Horse-shoe entrenchment, thrown up by the Danes (hence the name Danesfield), were objects of interest. The company returned by water to Marlow Bridge, and proceeded to the residence of Mr. James Carson, at Spinfield. The scenery along the Thames was much admired. After partaking of a liberal repast, the members and their friends, numbering about sixty, departed homewards.

Casting a Steel Ingot.—A casting designed for the beam of the screw steamship *Munster*, belonging to the City of Dublin Steam Packet Company, has just been made at the Norfolk Works, Saville-street, Sheffield. The mould in which the ingot was cast was upwards of 14 ft. in length, and 3 ft. in diameter, and was fixed in the middle of the principal melting furnace. About 300 men were in attendance, under the personal superintendence of Mr. Mark Firth. Almost military precision was observed in bringing from distant parts of the works the crucibles containing molten steel ready to be poured into the mould. This was fixed in a central position, and close at hand were 150 "holes," with tributaries from many other parts of the premises, and we believe that altogether there were 270 in operation. In about half an hour the contents of 544 crucibles, of 64 lb. each, were poured into the mould, making a total of 34,816 lb.

Statues.—It is said that a statue of Lady Godiva, belonging to the Liverpool Town Council, has been offered to the Council of Coventry, and declined. Surely no fitter place for such a statue, unless it be unfit for any place, could be found than Coventry. The association of Godiva with Coventry cannot be ignored; and as for the objections taken to the occasional procession in remembrance of her, the possession of her statue might tend to obviate this mode of keeping her in remembrance. If Lady Godiva is to be ignored, Peeping Tom and the Knave's Post had better be destroyed.——A colossal and clever statue of William De La Pole, the first mayor of Hull and founder of the Charterhouse, has been presented to the town of Hull. Mr. M. D. Keyworth, the sculptor of the Leeds Townhall lions, was the artist. The donor was Alderman R. Jameson, ex-sheriff of the town.

An Exhibition in the Arctic Regions.—Early in the month of August a general exhibition will be opened in Tromso, the capital of the southern province of Finmark, lat. 69° 30′, the programme of which is full and interesting. It is the first time this modern expedient for the encouragement and development of industry has been attempted in these northern regions. The exhibition will contain the products and appliances used in the several fisheries, those of agriculture, and of mechanical and domestic industry, together with objects and products illustrative of the mode of life and state of civilisation of the inhabitants of those regions.

A Great Western Ship Canal. — Mr. Adolphus Owen, of Exeter and London, proposes to construct a ship canal between the Bristol Channel and the mouth of the Exe, which would place the coal-fields of South Wales in direct communication with Portsmouth. The distance between Cardiff and Exmouth is now, by the ordinary sea route, 370 miles. The proposed canal would be 59 miles, reducing the sea passage to only 80 miles. The dangers of the Land's End would be avoided, and coal would be rendered far more accessible to the metropolis itself. The projector estimates the cost of the work at 3,500,000*l*. Telford designed a similar scheme some half-century ago.

New Esplanade, Bognor.—The new and repaired works of the sea-wall, at Bognor, have been completed and opened. The last two contracts were taken by Mr. Green, of Lewes, and Mr. Harris, of Portsmouth, a portion of groyne work being executed by Mr. Lawrence, of Portsmouth, and others. The result is the formation of one of the finest esplanades in the South of England. It extends continuously from one-half to three-quarters of a mile, the average width being 20 ft., the surface consisting of brickwork. The opening has been celebrated by a holiday festival.

The Mont Cenis Railway Company.—Vice-Chancellor Malins has had before him a petition to wind up this company, on the ground that their railway has been worked at a loss, the expenses of working it in the winter months being greater than the profits earned by working it in the summer months. By consent of the parties, Mr. James Atkinson Longreach, the present manager of the company, has been appointed provisional liquidator, and the rest of the petition has been ordered to stand over till November.

Staines Bridge.—Mr. Under-Sheriff Burchell and a special jury assembled at Staines, in the case of "Colonel Challoner and others *v.* the Corporation of London and the Metropolitan Board of Works," to assess the sum to be paid to the proprietors of Staines Bridge to throw it open to the public. Evidence was given that the receipts were about 1,000*l*. a year, and expected to increase. It was worth about twenty years' purchase. By arrangement the jury assessed the compensation at 20,125*l*.

New Bridge at Peterborough.—A public meeting of the inhabitants of Peterborough and its neighbourhood has been held to consider a proposal of the magistrates of the counties of Northampton and Huntingdon to erect a new bridge at Peterborough, instead of repairing the old one, on the condition that the liberty and city of Peterborough would contribute the sum of 2,000*l*. towards it. The chair was occupied by the Custos Rotulorum (the Hon. George Fitzwilliam), and appropriate resolutions in favour of the proposal were passed, a committee appointed, and various subscriptions promised or paid.

Ilchester, Somerset.—The chancel of the old parish church of St. Mary, Ilchester, is undergoing a course of repair. The present church is the only one now existing in the old Roman town which, according to Camden, Leland, Stukely, and other antiquarian authorities, once contained seven. Ancient and Mediæval Ilchester was a place of important note, though now a greatly decayed town. Concerning its Roman fosse-way, walls and remains, and its early English ecclesiastical institutions, we may shortly speak.

St. David's Cathedral.—The committee appointed to superintend the restorations have determined to at once commence the rebuilding of the roof and ceilings of the nave and aisles, postponing for the present the restoration of the pavement of the nave, also the west end and porch. The repair of the transepts and chapter-house have also to be postponed.

Green Slates.—Messrs. Roberts, Adlard, & Co. have sent us some specimens of the "Eureka" green slates. They seem very good, both in quality and colour. In size these slates will range with those from the Bangor, Festiniog, or Carnarvon quarries for ornamental roofing.

The Slade Bequest to the London University.—With reference to the Slade bequest to the London University, it is determined immediately to begin building the schools which will be required for the purpose. The election of a Slade Professor will take place in November next.

Steam Roller.—The Islington Vestry at their last meeting decided by a large majority to purchase the steam road-roller which for the last seven months has been employed in making the roads in that important parish. Any one who has observed the roads constructed under the new system will at once perceive the vast improvement upon the old method, and will be disposed to endorse the decision of the Islington authorities.

Temperance Hall for Guisbro'. — On Monday, the foundation-stone of a temperance hall was laid at Guisbro', by Mrs. Chaloner. In the afternoon there was a *fête* in the Priory Grounds, kindly thrown open by Admiral Chaloner for the occasion.

Whitworth Scholarships.—The practical examination of workmen and students for these scholarships has been fixed by Sir Joseph Whitworth to take place at his works, at Manchester, on the 30th of August and the 1st of September next.

New Lambeth Workhouse.—At a meeting of the board of guardians of St. Mary, Lambeth, held on Wednesday, the 10th inst., Mr. T. Nixon was appointed to prepare the bills of quantities for the above buildings by a large majority.

TENDERS.

For proposed new wings to the Printers' Almshouses, Wood-green. Mr. C. Bell, architect:—

Lawrence	£5,134 0 0
Gammon	4,788 0 0
Thompson	4,645 0 0
Browne & Robinson	4,425 0 0
Hill, Keddell & Co.	4,386 0 0
Henshaw	4,359 0 0

For proposed rectory house and stabling, Stoke Albany, Northamptonshire, for the Rev. W. R. F. Wandby. Mr. E. Browning, architect:—

Thompson	£3,698 0 0
Bagnell	3,316 0 0
Perkins & Sons	3,313 0 0
Halliday & Cave	3,085 0 0
Richardson. Son, & Roberts	2,969 0 0
Law & Son (accepted)	2,929 0 0

For reinstating 153, Shoreditch. Mr. L. Tanner, architect. Quantities not supplied:—

Greenwood & Sons	£965 0 0
Pask	930 0 0
Blackmore & Morley	785 0 0
Eaton & Chapman	770 0 0
Marr	745 0 0
Larke	737 0 0
Forrested (accepted)	557 0 0

For alterations of, and additions to, farm buildings, at Cliff Park and Mansel Park, Hulland, Derbyshire, for Mr. J. C. B. Borough. Mr. Sugden, architect:—

Smith (accepted)	£965 0 0

For new farmhouse and buildings at Cair Hall, Derbyshire, for Mr. J. C. B. Borough. Mr. Sugden, architect. Quantities supplied:—

Smith (accepted)	£2,324 0 0

For rebuilding George-street Congregational Church, Ryde, Isle of Wight. Mr. R. J. Jones, architect. Quantities by Mr. L. C. Riddett:—

Allen	£5810 0 0
Young	5,620 0 0
Ball	5,400 0 0
Sibley	5,351 0 0
Jackson & Shaw	4,937 0 0
Stevens	4,841 0 0
Cooper	4,682 0 0
Barton	4,649 0 0
Burbidge	4,643 0 0
Meader	4,253 0 0
Newman	4,009 0 0
Smith	3,917 0 0

For building private baths, at St. Leonard's-on-Sea. Messrs. Habershon & Brock, architects:—

Avis & Roe	£1,836 0 0
Nightingale	1,553 0 0
Howell	1,547 0 0
Rodda	1,470 0 0
Huges	1,467 15 0

For alteration to a warehouse, Wood-street, City, E.C. Mr. H. Ford, architect:—

Henshaw	£470 0 0
Kiddle	443 0 0
Brass	438 0 0
Shaw	394 0 0
Conder	378 0 0
Browne & Robinson (accepted)	362 0 0

For Wesleyan chapel, Wood-green. Mr. J. P. Johnson, architect:—

Henshaw	£4,983 0 0
Dove, Brothers	4,975 0 0
Carter & Son	4,670 0 0
Winship	4,470 0 0
Pocock	3,890 0 0

For the erection of stables, living-room, &c., in Camden-road, for Dr. Andrews. Mr. H. Spalding, architect:—

Brass	£795 0 0
Beaves	729 0 0
Phillips & Son	715 0 0
Carter & Son	675 0 0
Woods	620 0 0
Patman & Fotheringham	594 0 0
Scrivener & White (accepted)	573 0 0

For the erection of a building, No. 3, Bartholomew-lane, E.C., for the Estate Company, Limited. Mr. E. A. Gruning, architect. Quantities supplied by Messrs. W. R. Gritten & Son:—

J. & J. Coleman	£9,260 0 0
Mansfield & Price	9,130 0 0
Ashby & Sons	9,050 0 0
J. & C. I'Anson	8,990 0 0
Brass	8,893 0 0
Holland & Hannen	8,873 0 0
Trollope & Sons	8,684 0 0
Hill, Keddell, & Waldrrm	8,680 0 0
Henshaw (accepted)	8,475 0 0

For the erection of new premises for the National Provincial Plate-glass Insurance Company, 66, Ludgate-hill, E.C. Mr. T. T. Smith, architect. Quantities supplied by Mr. F. Dobson:—

Rayment & Son	£4,575 0 0
Henshaw	4,355 0 0
Ennor	4,260 0 0
Scrivener and White	4,217 0 0
Hill, Keddell, & Waldram	4,098 0 0
Kelly, Brothers	4,064 0 0
Brown & Robinson	3,937 0 0

For building a house at Woodlands, near Southampton, for Mr. Henry Timson. Messrs. W. & J. Jurd, architects. Quantities supplied:—

Harvey	£2,015 0 0
Rowland & Laver	1,960 0 0
Toogood	1,900 0 0
Brinton & Bone	1,875 0 0
Stevens	1,769 0 0
Richards	1,723 0 0
Sanders	1,620 0 0
Martin & Son	1,605 0 0

For the erection of public hall, at Bexley Heath, Kent, for the directors of the Bexley Heath Public Hall and Institute Company, Limited (first contract). Mr. Joseph Hewitt, architect. Quantities supplied:—

Atkinson	£1,367 0 0
Faithorne	1,250 0 0
Harrison & Sons	1,187 0 0
Rhodes & Roberts	1,179 0 0
Pollard	1,145 0 0
Bowler	1,092 0 0
R. & J. Butler	1,084 0 0
Nightingale	1,053 0 0
Kirk	1,047 0 0
Willis*	1,038 0 0
Sonergan	1,025 0 0
Mullner	1,020 0 0
Parsons & Telling	1,019 0 0
London Building Company, (Limited)	997 0 0
Peck	995 10 0
Blake	945 0 0

* Late.

For erecting two houses and stable in the Seven Sisters-road, for Mrs. Sadgrove and Mr. Golding. Messrs. Woodzell & Callcutt, architects:—

Pritchard	£3,953 0 0
Golding	3,799 0 0
Ennor	3,711 0 0
Brown & Sons	3,700 0 0
Woodward	3,700 0 0
Cooke & Green	3,651 0 0
Chessum	3,533 0 0
Smith	3,478 0 0

For finishing two houses, Stoke Newington. Mr. H. Ford, architect:—

Brass	£495 0 0
Kiddle	298 0 0
Caughey (accepted)	270 0 0

For the rebuilding of infants' school-room, &c., to the Broadway Congregational Church, Hammersmith. Mr. H. Spalding, architect:—

Scrivener & White	354 0 0
Adamson & Son	332 0 0
Bird	330 0 0
Braithwaite	330 0 0
Adams	326 0 0
Woods	325 0 0
Chamberlain	324 0 0
Hanks (accepted)	270 0 0

Greville House, Kilburn.—For "Phillips & Baker," read *Phillips & Son, of Baker-street.*

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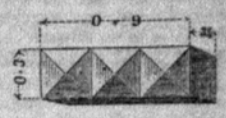

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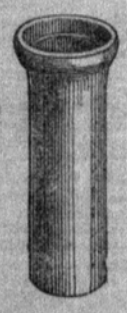

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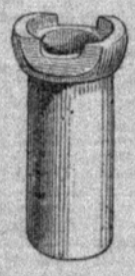

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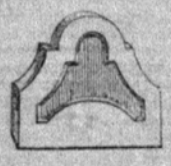

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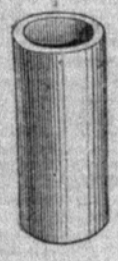

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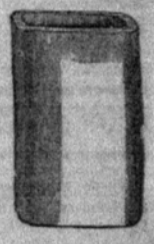

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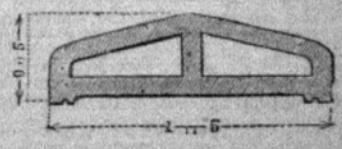

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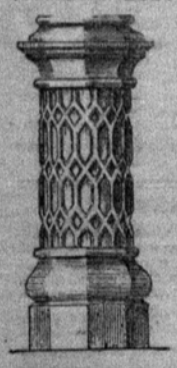

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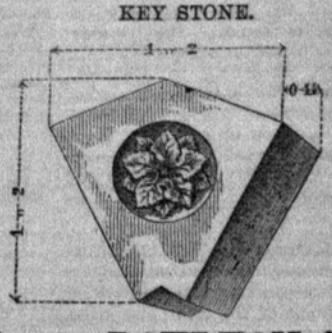

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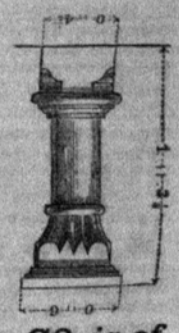

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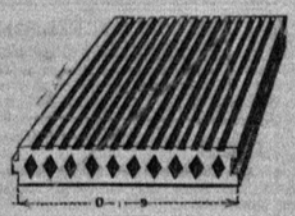

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Canterbury, 9th August, 1870. JAMES BURCH, Clerk.

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W. DAVISON, Secretary.

Port and Harbour Office, Hartlepool, August 9th, 1870.

WANTED, a thoroughly practical Man as WORKING FOREMAN of CARPENTERS and JOINERS. One that understands the other branches of the building trade, and has held a similar situation, may meet, if suitable, with permanent employment. Age not over 30.—Address, T. P. 78, St. Paul's-road, Bali's Pond, N.

WANTED, a BOY, with a knowledge of Drawing, for TRACING.—Apply at No. 2, Windsley-street Oxford-street, on MONDAY, from NINE to TEN o'clock.

WANTED, immediately, a WORKING FOREMAN of PAINTERS. Must be energetic, fully acquainted with his business, and capable of managing a number of men.—Address, stating wages, references, and full particulars, 400, Office of "The Builder."

WANTED, a small Builder's WORKING FOREMAN, to take the entire management of work and men. Must understand all branches, be energetic and experienced, and have filled a similar position. Good references required. State wages, age, &c.—Address, A. B. Post-office, Addleston, Weybridge.

TO BUILDERS AND OTHERS.

WANTED, by a thoroughly efficient and energetic Shop Foreman of Joiners, a RE-ENGAGEMENT, either as SHOP or GENERAL FOREMAN. Is a good draughtsman, also accustomed to machinery. Aged 42.—Address, T. E. 30, Sussex-street, Warwick-square, Pimlico.

WANTED, by a Young Man, aged 21, a Year or Two of IMPROVEMENT in a Builder's or Joiner's Shop in London. No objection to pay a small premium.—Address, E. EAGLE, Queen-street, Newmarket, Cambs.

WANTED, by a STAIRCASE-HAND or JOINER (good), a Constant JOB, or as FOREMAN.—Address, W. C. 12, Chapel-court, High-street, Borough.

WANTED, a SITUATION, in an IRON MERCHANT'S OFFICE or WAREHOUSE. Experienced. Can trace. Aged 21 years. Good character.—Address, T. J. 73, Bromham-road, Balston.

WANTED, a RE-ENGAGEMENT, as FOREMAN of BRICKLAYERS, or General Foreman, by a thoroughly practical London Foreman. Thoroughly understands drawings, the setting out and measuring up of work, and management of men. Good testimonials.—Address, W. B. 78, May-street, North end-road, West Brompton.

TO BUILDERS AND CONTRACTORS.

WANTED, a RE-ENGAGEMENT, as GENERAL FOREMAN, or CHARGE of JOB, by a practical, energetic, and sober man, thoroughly versed in all branches of the building trade. Well up in construction. Can set out and measure up any description of work. Carpenter and joiner. Age 35. Town or country. First-class references and testimonials.—S. P. 7, East-road, Fufield Highway, Middlesex.

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS, by an experienced practical Man. Good references from last employers.—Address, H. I. No. 6, Charles-street, Hampstead-road N.W.

WANTED, by an experienced Man, a SITUATION as FOREMAN, or Joiner's Work by the Piece. First-class references and security if required.—Address, W. Y. 16, Princes-street, Edgeware-road, W.

TO BUILDERS AND CONTRACTORS.

WANTED, by a practical Man, a RE-ENGAGEMENT as SHOP or GENERAL FOREMAN. Carpenter and joiner. Age 37. No objection to a country job.—Address, A. S. H. 40, Brunswick-street, Hackney-road, N.

TO MASTER PLUMBERS, &c.

WANTED, by a young Man, a SITUATION as PLUMBER. Can fill up time at gasfitting or other branches. Town or country. Good reference.—Address, C. B. 28, King's Cross-road, W.C.

WANTED, a RE-ENGAGEMENT, as BUILDER'S FOREMAN, or as GENERAL FOREMAN of WORKS. Has been engaged as above, including previous engagements as foreman of carpenters and joiners, for the last twelve years; is thoroughly sober and trustworthy. Understands setting out, measuring up, taking off quantities, and estimating. Good testimonials. Moderate wages.—Address, T. J. 18, Belgrave-terrace, Belgrave-road, Shepherd's Bush.

WANTED, by the Advertiser, aged 32, an ENGAGEMENT in an Architect's, Surveyor's, Contractor's, or Auctioneer's Office. Accurate draughtsman; well up in building construction. Thoroughly acquainted with quantity-taking, measuring, and estimating. Can draw and estimate dilapidations. Understands land surveying, valuation and management of house property, and is a good accountant. First-class references.—Address, SURVEYOR, Post-office, Tunbridge Wells.

WANTED, by a Young Man, a SITUATION as PLUMBER, GLAZIER, &c.—Address, H. D. 4, Francis-street, Tottenham Court-road, W.C.

WANTED, by a practical Man in all branches of the building trades, a SITUATION as CLERK of WORKS or GENERAL FOREMAN. Carpenter and joiner by trade. Good references and testimonials. No objection to a country job.—Address, H. 75, Great Chart street, East-road, Hoxton, N.

WANTED, by the Advertiser, a RE-ENGAGEMENT as GENERAL FOREMAN, or Charge of a Job. Have just finished a large job in the City. Is well up in the building trade, in all its branches. Would have no objection to a country job. Age 36.—Address, Z. 13, John's-terrace, Back-road, Kingsland.

WANTED, a RE-ENGAGEMENT, by an efficient CLERK of WORKS, with the highest testimonials.—Address, 875, Office of "The Builder."

TO BUILDERS.

WANTED, a RE-ENGAGEMENT, as FOREMAN, having just finished a large job in the City. Mason by trade. Good reference.—Address, 774, Office of "The Builder."

TO ARCHITECTS AND SURVEYORS.

WANTED, a RE-ENGAGEMENT, by a well-qualified ASSISTANT. Six years' experience. Can prepare plans, detail drawings, and perspectives; fair colourist; quantities, estimates, builders' accounts. Qualified as Master of Science and Art, and Government Science Teacher, in connexion with the Department, South Kensington. Disengaged on the 22nd. Address, L. L. Alpha-street, Slough.

WANTED, by the Advertiser, a SITUATION as a GENERAL HAND as DECORATOR, PLUMBER, or PAINTER. Aged 27. Either at a Builder's, Contractor's, or on an Estate. Wages not so great an object as constant employment.—Address, J. T. 5, Belle-vue Cottage, Westerham, Kent.

TO BUILDERS.

WANTED, a RE-ENGAGEMENT, by a thoroughly efficient London SHOP FOREMAN. Is a good draughtsman, systematical, and can assist a Contractor generally.—Address, A. Y. Z. Post-office, Reigate, Surrey.

TO GLASS MERCHANTS AND BUILDERS.

WANTED, by an active intelligent Youth, a SITUATION as ASSISTANT GLASS-CUTTER. Can square up and serve, and is quick at glazing. Can also attend to a pony, and drive. Good references.—Address, by letter, to A. B. 16, Ludgate-hill, E.C.

TO BUILDERS AND GLASS-CUTTERS.

WANTED, by a practical GLASS-CUTTER and GLAZIER, constant EMPLOYMENT, piece-work or otherwise, having had great experience in cutting and glazing all kinds of bent glass for lamps, &c.—Address, H. H. 32, Christian-street, St. George's, E.

WANTED, a RE-ENGAGEMENT, by an experienced DRAUGHTSMAN and GENERAL ASSISTANT. Designs in Gothic and Italian. Has a thorough knowledge of construction, surveying, and levelling. Practically acquainted with large drainage and sanitary work, accustomed to the superintendence and measuring up of work, and used to the management of house property. References, &c.—Address, ARCHITECT, Mr. Robertson, 95, Upper-street, Islington.

PLUMBERS, BUILDERS, &c.

WANTED, by a first-class PLUMBER, &c. a CONSTANT SHOP. No objections to filling up time in other branches.—Address, H. H. 19, Ingleton-street, Brixton, S.

TO CARPENTERS AND JOINERS.

WANTED, to APPRENTICE (In-door), a strong, active LAD. Aged 16. Moderate premium.—Address, by letter, S. BENNETT, 3, Annette-road, Holloway, N.

TO CARPENTERS AND JOINERS.

WANTED, by a Young Man, a SITUATION as IMPROVER to the CARPENTERING and JOINERY. Has been at the trade some time. A good jobbing shop not objected to. Town or country. Good references can be given if required.—Address, H. S. 48, College-street West, Camden-town, N.W.

TO BUILDERS.

WANTED, by a GENERAL FOREMAN, a RE-ENGAGEMENT. First-class references.—Address, A. B. 144, High-street, Borough.

TO LAND AGENTS AND OTHERS.

WANTED, by a practical Man, CHARGE of the BUILDING DEPARTMENT on a gentleman's estate. Understands levelling, surveying, road drains, &c.—Address, J. A. No. 1, Alfred-street, Vincent-square, Westminster.

TO BUILDERS, PLUMBERS, AND HOUSE DECORATORS.

WANTED, a SITUATION, by a thorough good practical PLUMBER, PAINTER, and GLAZIER. Can do writing and graining, if required. Good reference given.—Address, A. B. 67, Great Portland-street, Cavendish-square, W.

WANTED, PAVING, Foot or Carriage-way, Kerb setting, or Granite Dressing, to TAKE by the PIECE, by a first-class practical Man, of twenty-five years' experience under Dock, Railway, Metropolitan Boards, and Government Engineers. One trial.—Address, JAMES CRUTCHLEY, No. 7, James-place, North-street, Poplar.

WANTED, EMPLOYMENT, by a first-class GRAINER and MARBLER, by piece-work.—Address, X. Y. 37, Great College-street, Oakley-square, N.W.

WANTED, by the Advertiser, a RE-ENGAGEMENT as GENERAL FOREMAN. Is thoroughly practical and energetic. Three years in last employ. Aged 36.—A. B. 47, King Henry's-walk, Balls Pond, N.

WANTED, a RE-ENGAGEMENT, by a thoroughly competent BUILDER'S CLERK. Capable of taking the entire charge of the office or business. Practically acquainted with the trade. Undeniable references as to capabilities, integrity, and application to business.—Address, W. B. 6, Upton-road North, De Beauvoir-town.

TO BUILDERS.

WANTED, by a Young Man, well able to assist in office if required, a SITUATION as IMPROVER at bench. Has been three years at carpentry.—Address, B. S. 236, Vauxhall Bridge-road, S.W.

TO PLUMBERS, LANDLORDS, &c.

WANTED, by a steady, practical, handy Man, the MANAGEMENT of a GENERAL JOBBING SHOP, or to superintend and to do the repairs of gentlemen's house property. Wages 28s. per week. Good references.—Address, H. 45½, Hardinge-street, Cable-street, E.

WANTED, a SITUATION as MANAGING FOREMAN of MASONS, in a good firm. Good salary required.—Address, M. C. care of Mrs. Gray, 32, Graham-street, Eaton-square, Pimlico.

TO BUILDERS, CONTRACTORS, &c.

WANTED, a RE-ENGAGEMENT, by a thoroughly practical GENERAL FOREMAN, to take the entire charge of a job (in Town or country). Thoroughly understands all trades, setting out and measuring up work, and is well up in the preparation of detail drawings, &c. First-class references and testimonials.—Address, No. 850, Office of "The Builder."

TO BUILDERS.

WANTED, by a practical BRICKLAYER, an ENGAGEMENT as WORKING FOREMAN, or by the Rod. Well up in drawings and setting out. Good references.—Address, C. H. 26, Commercial-road, Lambeth.

TO BUILDERS AND PLUMBERS.

WANTED, EMPLOYMENT, by a good PLUMBER, GASFITTER, &c.—Address, A. B 12, St. John-street, Peter's-street, Islington, N.

TO BUILDERS AND OTHERS.

WANTED, by a practical Man, CARPENTERING, JOINERING. By the piece. Labour only. Has carried out large jobs. No objection to the country. Or a SITUATION as WORKING FOREMAN. Carpenter and Joiner by trade. Age 34.—R. A. 64, Lisson-grove, N.W.

TO BUILDERS AND ESTATE AGENTS.

WANTED, EMPLOYMENT, by an experienced practical Man. Aged 34. Used to shop and office. Warehouse or church alterations and repairs. Joiner and Carpenter by trade. Wages not so much an object.—Address, A. B. 1, Carlton-road, South Globe-road, Mile-end, E.

TO BUILDERS, SURVEYORS, &c.

WANTED, a SITUATION as CLERK. Understands quantities, well up in prime cost, measuring up, fair draughtsman, and has a thoroughly practical knowledge of the trade.—Address, B. C. Post-office, Duke-street, Manchester-square, W.

TO PLUMBERS AND BUILDERS.

WANTED, by a steady Young Man, a SITUATION as PLUMBER to fill up time in glazing, painting, &c.—Address, PLUMBER, 10, Charles-street, Islington-green, London.

WANTED, by a steady, industrious Man, a JOB, as FOREMAN of PLASTERERS. Has been with a London firm several years. Would have no objection to take a job anywhere, by day or measure. Good reference from last employer.—Address, J. G. 208, Southwark Bridge-road, London.

TO BUILDERS AND PLUMBERS.

WANTED, by the Advertiser, aged 38, a Constant SITUATION or JOB as PLUMBER, GASFITTER, and ZINC WORKER. Would fill up time at painting if required. Has had good experience in town and country at new and jobbing work. Good reference. Town or country.—Address, G. N. H. 43, Vere-street, Lincoln's-inn-fields, W.C.

TO PLUMBERS AND BUILDERS.

WANTED, by the Advertiser, who is a thorough practical PLUMBER, a SITUATION or JOB. Piece-work or otherwise. Good references.—Address, PLUMBER, 4, Queen's-row, Camberwell-road.

YARD FOREMAN.—WANTED, immediately, by a London firm of Builders and Contractors, a thoroughly competent YARD FOREMAN.—Address, with full particulars as to age, trade, salary required, and references, to G. H. D. 35, De Beauvoir-crescent, London, N.

TEMPORARY ENGAGEMENT.—A SURVEYOR of great practical experience in measuring, estimating, and quantities, will be glad to give TEMPORARY ASSISTANCE to surveyors or builders. Has had great practice in taking and settling extras and omissions. Would have no objection to undertake the books and accounts of a builder.—Address, SURVEYOR, 11, Duke-street, Portland-place.

TO ARCHITECTS AND BUILDERS.

THE Advertiser, aged 19, of quick business habits and good address, desires an appointment at a moderate salary. Is a good draughtsman, and quick at accounts. Good references.—Address, W. L. 18, Hurley-road, Lower Kennington-lane.

TO BUILDERS AND OWNERS OF HOUSE PROPERTY, &c.

THE Advertiser seeks an ENGAGEMENT to WORK on a gentleman's estate, or for a Builder, to do all branches connected with his trade,—namely, PLUMBING, PAINTING, ZINC WORK, GASFITTING, &c. Able to take all responsibility of job, if required. No objection to the country.—Address, A. B. 20, King Henry's-walk, Ball's Pond-road, Islington.

TO MANUFACTURERS. — AGENCY WANTED, by a Gentleman, who has Offices in the City and some connexion with architects and builders, and is a good draughtsman and designer.—Address, S. J. A. care of Mr. H. J. Casey, 34, Poultry, E.C.

TO ARCHITECTS.

EVENING EMPLOYMENT WANTED, by a good Geometrical and Perspective DRAUGHTSMAN and COLOURIST.—Address, S. A. care of Mr. A. Booth, 120, Cheapside.

TO ARCHITECTS AND BUILDERS.

CLERKSHIP REQUIRED, by a Young Man, aged 20. Has had experience at the bench, likewise been in an Architect's office, and is a fair draughtsman. Last situation in a Builder's office. References good.—Address, G. 74, Tollington-road, Holloway.

The Builder.

VOL. XXVIII.—No. 1437.

Town Death-Rates in Spring, 1870.

PUBLIC health and sanitary questions command more general attention than they did; there is a growing interest in them; but it is equally certain that the subject is still generally voted dry, uninteresting, and, above all, unsavoury. The disposal of sewage, the pollution of rivers, and such like, do naturally and inevitably crop up in all discussions of the first principles of sanitary science; but we may venture to assert that even these branches of the subject are delicate and cleanly compared with one which has recently been engaging the public and lively attention of no inconsiderable portion of the usefully-inclined ladies of England. As it is essentially necessary and important to popularise sanitary matters, might we not, therefore, hope and expect that ladies should give us some of their valuable assistance,—first, by devoting their own attention to the various branches of the subject, and then by using the now very general parochial "visiting" system, as a means of disseminating a knowledge of its elements among the uneducated classes? How much sanitary good might be effected by teaching the importance of, nay, necessity for, cleanliness of person, purity of air by ventilation, and of intelligent management of children as to dietary and medical treatment, it is impossible to say. It is no longer disputed that injury to the respiratory organs from breathing vitiated atmosphere, and the neglect of early treatment in cases of summer diarrhœa, result in the wholesale death of infants in English towns, in our cold and hot seasons. Ladies have opportunities for this useful and desirable task which does not fall in the way of men. Before proceeding to notice the signs of slow but positive progress, in the shape of results from the growth of interest in sanitary matters, and while, on the subject of the obstacles in the way of more rapid progress, let us notice one which must frequently have commanded the attention of sanitary students. The medical profession have not generally identified themselves with the cause of sanitary progress; nay, more, the progress that has been made may be said, in the main, to have resulted without the active co-operation of the profession. We are loth to suggest such a possibility, but can it be possible that, indirectly and almost intuitively, the profession have felt that sanitary progress was antagonistic to their self-interest? The possibility of such a construction should alone urge them to take most decidedly the initiative in this movement, for which their scientific acquirements ought to give them special qualifications. The most earnest thinkers of the day, however, agree in pronouncing that medical science and knowledge scarcely keep pace with the times. Lecky, in his introduction to the "History of European Morals," says:—"Of all the branches of human knowledge, medicine is that in which the accomplished results are most obviously imperfect and provisional, in which the field of unrealised possibilities is most extensive, and from which, if the mind were directed to it, as it has been during the past century to industrial inventions, and especially to overcoming space, the most splendid results might be expected. Our almost absolute ignorance of the causes of some of the most fatal diseases, and the empirical nature of nearly all our best medical treatment, have been often recognised." We have said, and we firmly believe, that sanitary progress is being made, but we want the more earnest co-operation of the medical profession, and, perhaps, more than all, the earnest assistance of English ladies, before this progress can proceed at the rate that we consider to be possible.

The Registrar-General has recently published his quarterly return for the second quarter of this year, for the three months ending June last. This publication, in its recently enlarged and improved form, affords much more ample means for forming a correct opinion of the sanitary condition of the country than was possible previous to the commencement of the present year. Last spring was remarkable for its high temperature, and for the unusually small rainfall. Excessive cold in winter, or heat in summer, most undoubtedly exercises a direct influence upon mortality, but the exceptional meteorological conditions of last spring do not appear to have affected the public health to any considerable extent, as the annual rate of mortality in England and Wales during the three months was 22·1 per 1,000 of the estimated population, exactly corresponding with the mean of the rates in the ten previous corresponding quarters. This national rate, however, somewhat exceeded that in the spring quarters of each of the three years 1867-8-9. Roughly speaking, rather more than half the entire population of England and Wales live in the principal town districts, and the remainder in the smaller towns, villages, and country parishes. In the entire urban population the death-rate last quarter was 22·8 per 1,000, against 23·4, the mean of the previous corresponding quarters; in the rural districts the rate was 21·0, against 20·3, the corresponding average in previous quarters. It is evident, therefore, that while in the large towns the rate was below the average, an excess prevailed in the rural population. May we not safely attribute a portion of this result to the continual increase of sanitary activity in our large towns, which has not yet made so much progress in the smaller towns and villages of our rural districts. In the seventeen largest English towns furnishing weekly returns, the death-rate last quarter averaged 22·3 per 1,000; and in the fifty towns ranking next in size, with populations ranging for the most part between 30,000 to 100,000, the rate did not exceed 21·9. Both these rates, it will be seen, were lower than the general town death-rate, which, as above-mentioned, was 22·8; it follows, therefore, that a considerable excess must have prevailed in a large number of the smaller towns, with populations under 30,000, in which there is less chance of sanitary matters receiving due attention, from the fact that the local papers, if any exist, have less influence, and are, as a rule, less ably conducted. Moreover, there is a necessity, as has been often urged, for the division of the country into sanitary districts, in order that small towns and villages may share with the larger towns, the great advantages of efficient health officers, and a thoroughly organized sanitary staff. It is evident that in the decline of town death-rates, they are approaching those prevailing in our rural districts, because they do not show a relative improvement; but it is also more than probable that if we could once solve the great problems affecting sewage and water supply, the death-rates in these two sections of our population would be permanently more nearly assimilated, for there are many advantages to be derived from sanitary regulation in towns which are scarcely attainable in small villages and country parishes.

Among the seventeen largest English towns the death-rate last quarter, in a population estimated at rather more than six millions, was at the annual rate, as above stated, of 22·3 per 1,000. In the several towns the lowest rates were 16·9 in Sunderland, 18·1 in Birmingham, 18·6 in Leicester, 19·1 in Portsmouth, and 19·8 in Hull; the highest rates, 23·9 in Liverpool, 24·7 in Leeds, 25·7 in Manchester, 26·1 in Bristol, and 27·7 in Bradford. These rates of mortality are governed to a very great extent by the proportion of deaths resulting from zymotic disease; as we shall presently see, the rates were low in the first five towns because few deaths were caused by scarlatina, measles, fever, &c., and excessive in the last five because these and other diseases of the same class were fatally prevalent. Compared with recent corresponding quarters, there was a marked decline in the death-rate of Liverpool, Manchester, and Newcastle, while there was fully as large an increase in those of Bristol and Bradford.

In the improved form of the Registrar-General's return, not only is information given for each of the 2,197 registration sub-districts, as well as for the 627 superintendent registrars' districts, but the information, instead of being almost confined to the bare numbers of births and deaths deals with the causes of death, the deaths of infants and elderly people, the deaths in institutions, the deaths from violence, and the number of inquest cases. In the first quarter of this year rather more than 20,000 deaths were referred in England and Wales to the seven principal diseases of the zymotic class; that is, to small-pox, measles, scarlatina, diphtheria, whooping-cough, fever, and diarrhœa. In the second quarter these deaths did not much exceed 18,000; speaking in round numbers, 6,000 of these resulted from scarlatina, 3,500 from different forms of fever, 3,000 from whooping-cough, and 2,000 each from measles and diarrhœa. Scarlatina continued, as in the first quarter of the year, very generally prevalent, and showed an increase in the south-western and midland counties, but had declined in most of the other divisions. In the seventeen largest towns, for which the information has been specially analysed, 5,887 deaths were referred last quarter to these seven diseases, against 6,636 in the first quarter of the year; there was a decline of 700 in whooping-cough, 500 in scarlatina, and 100 in fever, while the fatal cases of diarrhœa showed an increase of nearly 500, representing the commencement of the usual summer epidemic of this disease, which is for the most part confined to the infants of the labouring and uneducated classes. The average annual death-rate from these seven diseases in the seventeen towns last quarter was 3·8 per 1,000; in the several towns the lowest ratio was 1·1 in Sunderland, 1·4 in Leicester, 2·1 in Nottingham, 2·3 in Norwich, and 2·4 in Birmingham; the highest rates were 4·0 in London and Liverpool, 4·1 in Manchester, 4·8 in Sheffield, 4·9 in Bradford, and 5·6 in Bristol. Of the 155 deaths from small-pox in these towns, no less than 118 occurred in London, and 25 in Manchester and Salford. Compared with the 2,162 fatal cases of small-pox in Paris during the three months under notice, the 118 in London appear favourably few, but when we consider that in the sixteen other English towns, with an aggregate population about equal to that of London, only 47 occurred, it is hardly creditable to the metropolitan health officers. Deaths from small-pox signify invariably neglect of vaccination; thus, therefore, the excess of deaths from this disease in London signifies that the anti-vaccination party has more deadly influence in London than in our provincial towns. Measles were also proportionately far more fatal in London than in the other towns. Scarlatina was

most fatally prevalent in London, Liverpool, Bristol, and Sheffield. The sanitary condition of Sheffield appears anything but satisfactory, as this severe epidemic of scarlatina has followed very closely upon one of small-pox, and the mortality from infantile diarrhœa in recent weeks has also exceeded that in other towns. The excessive mortality from zymotic disease in Bristol since the beginning of this year is the more remarkable, because the attention to sanitary matters in Bristol has in late years been unremitting, and in the main so successful as to be made the subject of very general comment. Different forms of fever, which after small-pox may be pronounced most directly amenable to sanitary control, were proportionately most fatal in Manchester, Sheffield, Bradford, and Liverpool.

A word or two as to the ages at death in these seventeen towns. A more satisfactory condition of the public health than now exists would naturally increase the mean age at death; fewer children would die in their infancy, and a larger proportion of deaths would occur at the riper ages. Of the total deaths in these towns last quarter, 19·1 per cent. was of persons aged sixty years and upwards. This proportion was 14·5 in Sheffield, 15·8 in Bradford, and 15·9 in Manchester; highest, 21·3 in Birmingham, 21·5 in Sunderland, 21·6 in Hull, 22·0 in Nottingham, and 28·1 per cent. in Norwich. Really infant mortality may be most usefully considered by observing the proportion of deaths of infants under one year of age to births registered. In our present state of civilisation it appears inevitable that a considerable proportion of infants should die within a few weeks of their birth; the number of these deaths under one year is therefore to a great extent governed by the birth-rate, and the above method takes this into consideration. In the seventeen towns last quarter to every 100 births registered 14·7 deaths occurred among infants under one year of age; this proportion was 10·9 in Portsmouth, 11·0 in Sunderland, and 12·7 in Sheffield; while it was highest, 17·1 in Manchester, 17·5 in Liverpool, and 18·0 in Bradford.

The proportion of deaths in large public institutions from a sanitary point of view is far from unimportant. Of the total deaths in the seventeen towns, 14·5 per cent. were so recorded last quarter; the per-centage varying from 8·0 in Bradford and 8·4 in Norwich to 14·9 in Manchester and Salford, 16·0 in Liverpool, and 16·7 in London. These deaths, for the most part, consist of those recorded in workhouses and hospitals. The soundest method for computing the mortality in institutions of this character, in which the number of inmates is continually varying, and in which the mortality depends so much upon the condition of the inmates when admitted, is still a moot question; neither do means yet exist for satisfactorily comparing the relative mortality from epidemic diseases when treated in public institutions, and when in private practice. The balance of evidence is at present in favour of the latter.

Whatever may be the general conviction as to the control which sanitary regulation will eventually exercise upon deaths from epidemic and other diseases, no doubt can reasonably be felt that the waste of life from violent and mechanical causes might be most absolutely controlled by more complete police regulations, and a higher standard of education and intelligence among those classes having the superintendence of and employed in great industrial works and factories, and those having charge of horses, carts, and vehicles for public conveyance. In the seventeen towns last quarter no less than 1,178 deaths resulted from violent causes, including all cases of accident or negligence, manslaughter, murder, or suicide. These deaths showed a proportion of 3·4 per cent. of the total deaths, in the different towns. The proportion of these deaths was lowest, 0·7 in Leicester, 1·4 in Norwich, and 1·5 in Bradford; it was highest, 3·7 in London and Sunderland, 4·8 in Liverpool, and 5·1 in Birmingham. Inquests were held upon 5·9 per cent. of the total deaths in the seventeen towns; upon 3·3 and 3·4 per cent. in Bradford and Wolverhampton, and 6·6 and 11·1 per cent. respectively in Manchester and Birmingham. The excess of inquest cases and of violent deaths in Birmingham is somewhat remarkable.

Among the fifty towns of the second magnitude, Birkenhead, Dover, Southampton, Coventry, Ashton-under-Lyne, and South Shields, were remarkable last quarter for their low death-rates; Oxford, Exeter, Bath, Stoke-upon-Trent, Macclesfield, Wigan, Bolton, Huddersfield, and Halifax for their high rates. In Exeter the rate was 27·0, and in Halifax 31·6.

On the whole, the sanitary condition of our towns, as may be deduced from the figures of the Registrar-General in his last Quarterly Return, shows progress, and, generally speaking, their recent health appears to have been satisfactory, although it is needless to point out how large a field is yet open for the further development of sanitary science and control. Public interest in these matters must not be allowed to flag, and the timely accession of ladies, and more generally of the medical profession, to the ranks of sanitary reformers, would just now be of incalculable value.

THE WORKMEN'S INTERNATIONAL EXHIBITION.

Little by little, and day by day, since its opening on the 16th of July, has the Workmen's International Exhibition assumed more important proportions. The large space which was empty on the occasion of her Majesty's visit, has received tenants of different classes; and the daily attendance has increased, until it has attained the respectable total of 10,000 visitors. It is a matter of great interest and significance to observe that by far the largest number of these visitors avail themselves of the evening leisure, and of the low charge of admission, between seven p.m. and ten p.m.

We cannot, however, disguise the fact that the Exhibition is likely to prove more important for the suggestions offered by the experience it affords, than for its actual magnitude or variety. Its value is rather for the future than for the present, rather for the reflective thinker than for the sightseer, or even for the exhibitor.

It must be borne in mind that the council have had to contend with unusual difficulties. The case was not one in which the lustre of Court favour, or the pomp of provincial magnates, commanded an ample guarantee fund, as in the instance of the Great Exhibition of 1851. Some eight score names alone form the list of guarantors; and among these, while the King of Wurtemburg, the Lord Lieutenant of Ireland, the Duke of Devonshire, the Earl of Rosebery, Mr. Digby, and three commercial firms, are set down for 100*l.* each, there are the names of twenty operatives, who assure the modest but welcome sum of five shillings apiece. While a healthy interest is thus known to be spread over every class of society, the depth, so to speak, is very small for the extent of surface; the total guarantee fund not quite reaching the sum of 2,500*l.* So small an amount precluded much recourse being had to those ordinary means of advertisement which have become so necessary, in the present day, for attracting public attention; and the gratuitous services of the honorary secretaries and of the members of the council, who, in their different stations of life, freely gave up time of great value, could do but little to supply the want of the great medium of notoriety. There is a want, too, of organizing talent apparent.

Add to this the fact that the principal manufacturers, both in the United Kingdom and abroad, are becoming less inclined to sacrifice either money or time for the sake of sending articles to exhibitions. The feeling is becoming generally prevalent that, although the first exhibition amply repaid, by its results, the cost and trouble of the exhibitors, it was the only one that thoroughly did do so, as, under one title or another, at London, Paris, Dublin, and numerous other cities, exhibition succeeding exhibition, the advertising value of each diminishes, as the novelty decreases; and the project of opening a permanent International Exhibition at South Kensington may be fairly expected to knock all rivals on the head, at all events in this country.

To these general obstacles, to the slackness of trade, the long-continued and instinctive apprehension of war, which has cast the shadow of the Black Monday of May, 1866, over three years of our history, and the hesitation of the operatives to believe that a hall of exhibition was in good faith, and for no interested motive, open to their productions, has to be added the special consideration that an exhibition which should, at the same time, include the civilised world in its area, and descend to the particularisation of the individual workman (even in the case where four or five processes had to be conducted, in order to produce a single article), comprised features that were absolutely incompatible, on any large scale. If only a hundred countries and cities each sent from their principal establishments, and from a proportionate number of independent workmen, contributions under each of the eighteen classes invited to the exhibition, the number of individual names would be so great that none could be distinguished in the crowd. In England even distinct individuality would be lost in the cloud of detail, although those interested in any special branch of industry might pick out the most deserving names. But to suppose that the names of foreign workmen should thus become known in England, that any visitor should care to understand whether Gennaro Rosa or Gaetano Vecchio was the actual workman who executed a particular small wooden medallion for Grandville et Compagnie, is obviously quite out of the question. There is a limit to the power of observation; and if it is intended to descend to the minute detail of the names of individual workmen, the classes of objects to be exhibited, and the localities from which they are sent, must be limited in a corresponding degree.

The mode in which these opposite conditions have balanced one another in the case in point, is by an irregular and inadequate supply from the area from which contributions have been invited. In some instances producing countries are chiefly conspicuous by their absence. Thus, our nearest neighbour, France, with its 37,000,000 of inhabitants, sends a mechanical carriage (Class 3), improved fishing-tackle (Class 10), samples of thuga-wood, wine, maize, and cotton from Algiers, and liqueurs from Nice. This is all for which the empire figures in the catalogue. On the other hand, Italy, Denmark, and Bombay contribute the most complete and interesting series of industrial productions that are to be found in the Agricultural Hall. Germany, Austria, Bavaria, and the Netherlands, together with Italy, France (for the objects named), and Bremen, are the only names of contributing countries or states included, together with Great Britain, in the official catalogue.

Of the more brilliantly represented foreign countries there is this essential difference between the contributions. Denmark and Bombay, while each occupying a considerable proportionate space with objects of great beauty and interest, are already independently represented in London; the former at the Danish Gallery, 142, New Bond-street, and the latter at the Indian Office. Very little is to be seen at the Agricultural Hall of the productions of these two contributing countries which is not more accessible to a large proportion of the purchasing population of London, within a short distance of Charing Cross. Italy, on the contrary, has set herself earnestly and thoroughly to work to send to the Workmen's Exhibition a fair display of the industrial productions of her principal cities and towns. The Roman *cameï*, in shell, so effective when they are not compared with their prototypes in agate and onyx, we mentioned in our former notice, as well as the marble and Byzantine mosaics of Florence, the exquisite filigree-work familiar to the lounger in the Strada de' Orefici at Genoa (which may be obtained at No. 224, Regent-street), the wooden mosaics of Sorrento, resembling our own Tunbridge ware, and the sculpture and wood carving of Florence and of Venice. There is a large assortment of jewelry, from the Italian capital, valuable for its permanent and durable nature. The mosaic brooches, in fine marbles and coloured stones, are by no means unknown in this country. More rare, as far as we are aware, are those ornaments in glass mosaic, which the exhibitor terms Byzantine. There are representations of beetles, or other objects, formed of very minute tesseræ of variously coloured glass, which, instead of being flat, are embossed on the surface, so as to resemble very closely the diamond beetles which ornament the jewelry of Brazil. The exquisite taste with which the hues of flowers and of shells are reproduced on the larger specimens of inlaid marble, is rivalled by the cunning which represents form as well as colour in the glass mosaic. P. Bozzanti & Co., of Florence, exhibit the jewelry in question; and the enterprising exhibitor of the larger and more splendid mosaics, the cabinet which, referred to in our former article, twice attracted the attention and admiration of the Queen, and some tables which, in addition to groups of flowers and of shells, had transparent gems, such as topaz and emerald, inlaid in the solid marble, is Signor A. Civita, of Florence. We trust that

these enterprising tradesmen will find a sale for the very beautiful objects which they have sent over in such a spirited manner. We fear that the want of salesmen or attendants who can speak English will sadly militate against this. Nor can it be denied that these costly and precious articles are very unlikely to find purchasers among the majority of those whom the Exhibition is organised to interest. For the English goldsmith, jeweller, and decorative artist the opportunity of closely inspecting the Danish and Italian goldsmiths' work and jewelry is most valuable. But he will go to look, not to purchase, and our foreign visitors will be but poorly remunerated unless a more wealthy class of purchasers are attracted by the fame of their wares.

The range of the Danish work is fully equal to that of the Italian. There exists a natural tie, dipped in that blood which is stronger than water, between this gallant little sea-kingdom and our own. In some of our towns, and those among the most noted for handsome men and noble-looking women, the Danish element has left an abiding mark. No foreigner acquires our tongue with more ease, or speaks it with less foreign accent, than the Dane. No less truly may it be said that no foreign workman so closely resembles the very best class of English operative in that solid and patient finish which forms the pride of our workshops. The Danish jewelry, formed on old Norse patterns, is remarkable for the good colour of the metal, for original elegance of design, and for admirable execution. The collars, bracelets, brooches, and earrings which M. Börgen exhibits, together with the true form of the Dagmar cross (which has been pirated in so inferior a copy), leaves the impression that only one thing is wanting, namely, a full purse to buy them.

With regard to machinery and inventions, comprising between 600 and 700 exhibits in the original catalogue, the great want which we have encountered in almost the entire Exhibition forms a special disqualification in face of the inquiring visitor. This want is that of exhibitors. The cases are left to explain their contents by themselves. In four or five repeated visits we failed to find any one who could answer a question out of the great majority of those which we wished to put. In "Italy" no language was audible but Italian. In "Denmark" we failed to find an interpreter. In "India" we found no attendant whatever. In some cases of English display we only met some very young man or woman who could do little more than watch that no one broke the glass, or perhaps could quote a price. If this almost universal abandonment of the articles exhibited to the sole care of the invisible police, or of the honourable fear of the visitors, has thus acted as a wet blanket in the case of those who have visited the Exhibition with the express purpose of aiding its objects by describing them to the public, what must be the case as regards intending purchasers? In one or two instances we actually left written inquiries, but with no better results. No conscientious critic can say much of objects at which he merely has a peep through a glass, without, in many cases, even a descriptive label. We think that manufacturers, whom we might specify, have made a great mistake in merely sending the contents of a shop-window, without having the shopman inside.

On the other hand, there are stalls which are no other than those of a bazaar, with the eager invitations to buy which prevent timid people from even daring to look. One exhibitor, in the gallery, performed the not very advanced *conjuring trick* of making an egg disappear in a red bag, and then offering egg, bag, and secret for the sum of 1s. This is no more a subject for a workman's exhibition than are cases of electro-plate or of leather work without attendant. We do not wish to be hypercritical, and are not hard to please; but in instances where it is proposed to illustrate an important local industry there ought to be some medium between the dummy and the tout—some one to explain to those who seek for instruction, the object and intent of the exhibitor.

One great lesson to be drawn from the present state of the Exhibition is, that organisation and proportionate arrangement must underlie any very successful attempt to bring the workman face to face with the purchaser. It is useless to attempt all at once. For local exhibitions, such as those of the industry of a town or of a district, or for classified exhibitions, such as one of goldsmiths' work, jewelry, and electro-plate,—or of woodwork and wood-carving,—or, again, of glass moulding, cutting and engraving, prominence may be given to the name of the individual workman with great advantage. When the world is invited to compete this cannot be done,—at least, it cannot be done so as to do justice to the expectations of the workman, if the world comes, when invited, in anything like force.

Another very important lesson may be drawn from the relative emptiness and fulness of the Hall in the day and in the evening. The locality, no doubt, goes for much in this. All the more are we bound to note the fact. We find that if, in an industrial locality, a place of evening resort is opened, which is devoid of any of those attractions which captivate the senses—music, dancing, theatrical display, wine, spirits, or beer, or even pure, exhilarating fresh air—if we only give them a room in which to meet, light, opportunity for circulation, and objects, not in overpowering numbers, to interest the eye, by their beauty, or the mind by their industrial value, the operatives will come in crowds. Well conducted, easily pleased, ready to be taught, glad to be kept out of idleness or mischief—such are the thousands who throng these nightly *conversazioni*. No need to give them an Italian name; they fulfil a great want of a large portion of the English public.

This, then, is a hint which we hope some of those men whose respected names we read on the pages of the Official Catalogue of the Workmen's Exhibition will not be slow to take. A comfortable, quiet, cheerful evening resort for the working classes would be a self-supporting institution. In attractions, in the way of permanent objects of interest, we might rely on the operation of the great moving power of the day, the spirit of advertisement. Well-arranged cases of the various wares, the salesmen of which keep alive so many newspapers by their advertisements,—would not be wanting. If the genius of selection and of organisation (the genius of South Kensington) presided over this part of the scheme, and if the period of exposition for the same articles were limited, tradesmen would readily adopt so admirable a mode of advertisement. There, however, sale should be prohibited. Reference should be distinctly made to the place of sale. Then the organ need not be dumb; but, with solemn or lively music, would add to the attraction of the place. And if to that were added a series of popular lectures,—not dry preachments, but illustrated teaching, given in language like that of Faraday, and lighted up by the magic transformations of chemistry, by the glories of electric light, by the wonders of the spectroscope, or the luminous geometry of the transparent orrery; or, tales of travel, illustrated by the presence of grim idol, or rude canoe, or, perhaps, some vagrant and half-tamed savage. These lectures to the working classes, in which the most educated and able men the country can boast would soon be proud to take a part, would be a great national boon, and would be calculated to draw together the several grades and orders of society. Whether once or twice a week, or even nightly, if an hour's lecture of this kind intervened, with perhaps some half-hour's music, the Hall being opened, say from half-past six to half-past nine, at a low charge, it is not unlikely that such an institution, if the management were adequate to the scheme, would prove one of the most popular in the country.

SHAKSPEARE'S THEATRES AND OUR OWN GAFFS.

So much has been written about the life and doings and works of William Shakspeare, that it would seem to be almost, if not quite, impossible, to say a word about either him, or his doings, or his writings, that has not been already said. But the public interest in the immortal bard seems endless, and the curiosity of the public about him and his wonderful writings inappeasible, and it would even appear that the foreigner is yet more curious about the matter than we are, for almost no end of famous German professors in and out of universities have lectured, or are about to lecture and speculate on the meaning and mysteries of the great plays which he wrote. Indeed, if the reader will but go into the reading-room of the British Museum, he will there find, to his consternation, no less than three folio volumes of catalogue devoted wholly to a list, a mere list, of the names of the writers and titles of the books which have been written by all sorts of people to explain him, and to develope the meaning of the plays which he wrote. But one thing more there yet is which all these learned people have said nothing, or next to nothing about, and are certainly not at all likely to say anything about—the German professors with all their monster research will not, it is quite sure, touch on it, and yet it is, we had almost said it, the key-note to the understanding of the man, and what he did, and his fair starting-point. It may be specially addressed to our readers, inasmuch as it has to do with "building." This, then, is the problem, a twofold one,—*What sort of place* was it in which Shakspeare played, as a player, and afterwards wrote for; and is there now in this, our present day and hour, any such place to be found, and if so, what is it like? Conceive the curiosity of the public and of the learned if, in digging for the main drainage, or for a new subway, the very ruins of the "Globe" or the "Blackfriars" should be come across, so that out of its ruins and its decayed timbers the Globe Theatre might be re-erected and presented to the wondering eyes of this modern generation. Why, it is quite certain that the whole nation would flock to see it, and perhaps even the German professors themselves might go there for help and hints in the composition of the forthcoming lectures and accounts of the "life, character, and dramatic genius of Shakspeare." Alas! for the great men and the big giants of this world. If the Homers, Dantes, Miltons, Michaelangelos, and Shakspeares could but be seen at their work, as they really did it in their own days, how startled and disappointed the world would be, and how low it would be all of it thought. Our present business is not with the poetic, but with plain facts and common matters. What kind of place, then, was the Globe Theatre or the Blackfriars, and what kind of actors were they who performed in them, and how did they act, and what kind of audience was it who listened, and applauded, and condemned?

But a word or two just to make a new thought intelligible as to the position of Shakspeare and his acting capabilities, when he found himself, on some chill morning, at the stage entrance of the Blackfriars, and compelled by dull necessity to ask for something to do in it; surely the most wonderful and sensational morning in his life, far surpassing anything he could ever have felt in the writing of Hamlet, or Othello, or even in the rewriting, without a blot, the whole batch of his plays. Mr. Charles Knight says that the door of the theatre was not a difficult one for Shakspeare to enter. But, alas, again, for the facts of poetry. Shakspeare came to London, and presented himself at the door of the theatre, in search of employment, simply because he could not help it. His father and he himself were in difficulties, and all the well-known story of the deer-taking, and the very reasonable indignation of Sir Thomas Lucy, of Charlecote, is as veritable a piece of history as any that exists. Mr. Knight says it is fiction, but it is necessary truth. Shakspeare came to London town because the little village of Stratford was too hot to hold him, and because he must needs live somehow or other. To London, therefore, he came, and to the door of the Blackfriars also, as the readiest thing that offered, and from the fact of his knowing nowhere else to go to, and from the likely fact of his passing acquaintance with some of the strolling players who occasionally passed through Stratford. This brings us to the very starting-point of his dramatic career and future life as a player and writer of plays, how he acted, and how and why he wrote, and to the kind of place he had got to. Theatres, in Shakspeare's day, were managed pretty much as they now are; there was a principal man and manager, and a principal actor, and subordinates, and "supers." The magnificent man in poor Shakspeare's day was James Burbage, the head of the company, and the future master and manager of the immortal bard himself. We can imagine vividly the scene enacted on that most eventful morning; for had things turned out less favourably than they did, the world might never have seen the plays themselves. What were the plain, every-day, not at all mysterious, facts of this very simple case? Why, the said James Burbage, the manager, must have been struck with something very much like surprise at the application of the would-be tragedian, or comedian, at the strangeness of his request. With a countryfied manner and voice, and even face, and with little or no histrionic or actor's faculty in him, Mr. Burbage must have asked him (how could he help it?), what it was he

thought he could do? and it is quite certain that William Shakspeare then and there must have been fairly driven into a corner, and at his wits end for an answer. Nature had, indeed, been prodigal of her gifts, almost without measure, to this her favoured son; but the talents of an actor she had denied him. He could not act any of his own characters; for it is said, significantly, by those who knew him, that he was "good in those parts that he took to." The fact really is, or was, that Shakspeare was good for nothing in the Blackfriars but the part of a "super." What followed? (what Mr. Knight and others will say we dare not think of). Why, dismal to say it, this; that in all probability he but too gladly accepted this very humble birth, and but walked on the stage to stand there at the back of it for a minute or two, and then moved off again. The precise way in which this simple manœuvre is accomplished, and the way in which it is made to tell, and becomes a sort of dull necessity, is, and can be fully seen nowadays only in a "gaff," as it is called, a remnant of things as they were in the days of Shakspeare, and which would seem to have come down from his day to ours with but little change; and making appeals, with occasional exceptions, to much the same sort of audiences. In solemn truth then, Shakspeare, whose words, Mr. Emerson says, will "reverberate through all coming centuries," and whom Mr. Carlyle says, "No Englishman would exchange for our Indian empire,"—this man, William Shakspeare, was nought but a "super" in a gaff! We consider this, strange as it may sound, as a matter of absolute certainty, and open to absolute proof. This, of course, is not the occasion on which to go at length into this proof; we only state the fact, for fact it is. But what was the next move, what more was to be done by Mr. Shakspeare, this engagement producing, as is obvious, so little towards the fell necessities of himself and wife and children, why, still more horrible to relate, comes the next yet more frightful fact in this little biography? It was the custom of the time to ride horseback to and from one place to another, there being but very few vehicles of any kind, or, perhaps, none, in this order of society; and there must have been, therefore, quite a little trade done in the caring for these horses, while the masters of them were otherwise occupied than in the riding them, and no little confusion and loss at times: what more likely, therefore, than that Mr. Burbage, the manager of everything, and with all his eyes open to the wants of the theatre, should have proposed to our Shakspeare, seeing that acting would produce but little, that he should, being used to such matters in his native farming village, look to the waiting horses, as Rowe writes he did; and that he, not being able to do all the work personally, should, as we are told he did, in the plain matter-of-fact histories, hire boys to do this, under his management and direction. Nothing ever was more likely, though Mr. Knight, his enthusiastic biographer, in his mythical life of him, will not hear of it. Rowe says that these youthful assistants were called "Shakspeare's boys," and seem to have been preferred on that account, and to have been consequently more readily trusted with the care of the more valuable horses, and it is not a little curious to find how this so much-disputed fact is open to confirmation at the present day, and palpable to all who will go low enough for it. The fact is proved by the naturalness of the language used to express it. It was not invented by Shakspeare; it was the talk of the street boys themselves, and goes on at this hour; for, if visiting one of these remnants and living remembrances of Shakspeare's life and day, you should happen imprudently to take the least notice or enter into a little friendly talk with any member of the gallery, of the tribe of the unwashed, and then, forgetting it all, on a succeeding night,—say, next week,—when a new piece is on, you should incautiously look about a little inquiringly, the chances are a hundred to one that somebody bawls out, "Looking out for your boy, sir?" and, before you have time to recover from the momentary surprise caused by the directness and vigour of the question, you will be told with equal plainness, "'cause he's down stairs outside a waiting for you." A true story; no invention is called for in it. Poor Shakspeare, how we must sympathise with him. Mr. Carlyle says, looking at the surroundings of the man and his faculties at this time, it must be apparent to most that he had his difficulties. Indeed he had; we can appreciate them; for what with the crowd of thoughts in him in vain seeking for some public utterance—and there was none at first—and his awkward wife at home, his stupid work at the playhouse, his boys not to be got rid of, and his small means, his surroundings must, indeed, have been tremendous, and one fairly wonders how he ever did get over them or through them at all. He never would have done so, and we—the world—would never have seen the plays but for one thing, and this again takes us into the gaff. Mr. Knight says that Shakspeare became an actor because he was a writer of plays, and not a writer because he was an actor; surely the direct opposite of the plain and evident facts which are as vivid as daylight. It was the sole thing left for him to do. The acting "super" brought next to nothing, his youthful assistants took the horse-holding ready cash, and spent it, or coaxed him out of it, and there was nought else but—and this was the opening fate offered him. The stuff that the players had before them to talk was so dull and of such an intensity of stupidity, as it is now at this hour in the gaffs, that he could not but think how very little it would take to throw, even if it were but now and then, a word or two, or a sentence, into the dialogue, which the gallery could at least understand the simple meaning of. And he began to write. Not, perhaps, even short plays, but adding a little here and there to the MS. copies of those forming the stock-in-trade of the theatre, and the manager finding these tell on the audience, he, doubtless, though we cannot prove it, did write a number, it may be of short three-act plays, just the things to catch the humour of the audience. His first efforts were, probably, never printed, and existed only for the use of the actors in MS., and are for ever lost. Wonderful things, doubtless; in some senses better than any we have,—shorter and exactly fitted to the time and audience, not so much his own pure invention as a reflex of the mind and talk of the gallery woven into some common story. This it was that made him, not a manager, as Mr. Carlyle calls him; nor an actor, as Mr. Knight dubs him; but a simple somebody in the playhouse, and on a level with the chief actors, and out of the "super" class, and the horse-holding trade. He became a necessity in the place. Apart from spiritualities, says Mr. Carlyle, and considering him merely as a real, marketable, tangibly useful possession, does it not appear that a thousand years hence we can fancy him as radiant aloft over all the nations of Englishmen, and the greatest thing we have yet produced. Yes, it may be so; but he never thought this of himself, and could not do so, for at his very best he was nothing more than on a level, by dint of *useful*, marketable writing, with the actors in a gaff. Let no one despise it. Some tremendous work is sometimes done in a gaff. A gaff is not a "minor" theatre; and there is a passage in "Hamlet"—a well known one on the subject of acting—which applies to this lower kind of acting which goes on in it, but not to that done in what is called familiarly a "minor house," such as the Strand or the present Globe. We refer to the passage where Shakspeare complains of the exaggerated style of the acting in his day, and to the "strutting and bellowing," and the "imitating humanity so abominably,"—a charge that could not be made against the doings in a "minor theatre," but in a gaff it is a necessity, there would seem to be no other way. Strut and bellow they must: the audience, the gallery, compelling them to do *something!* If the head cannot be penetrated, why the ear must be split. But let not any one suppose for a single moment that the gaff audiences are stupid, or dull of hearing, for it is quite the reverse of it; *sharpness* is perhaps the best word expressive of its overflowing life and unsatisfied longings. It was not, therefore, as one moving with modesty, though with conscious dignity, among the throng of wits and poets, as Mr. Knight and others have it, but as one hard driven by every adverse circumstance conceivable or well possible, that Shakspeare was compelled to do what he did—to come to London, to go to the playhouse to act, or rather move about on the stage, to attend to the holding of horses, even if he did not do the work sometimes himself, and finally, and as a last resource, to *write plays!* All this happened in and between the years 1585, the date of his coming to London, and 1589, the date of his becoming a part proprietor of the Blackfriars Theatre, the most memorable years of his life; for before that he was comparatively thoughtless of himself, and after it, being part owner, he stood on somewhat sure ground, and must have felt, to a certain extent at least, independent. There is nothing more wonderful in the history of purely English doings than this of Shakspeare's work, for the *place* produced the man, and not the man the place, and that place was not a grand opera-house, or a Drury-lane, or even a Strand, or a Globe, but a veritable "gaff,"—a small, utterly insignificant place, filled with some dozen actors, or even less, and with an audience for the most part composed of only such as nowadays are almost proscribed, and which there is every now and then every effort made, though most unfairly and unwisely, to put out of the way altogether. Unfairly, because all, however low they be, have a right to be amused; and unwisely, because there are those who will go to no other place for instruction of any kind, but who will, and do, go to a gaff, and who may, and do, find *instruction* in it as well as amusement. The main and chief sin in a gaff, be it observed, lying in the fact of its charge of admission to the many being a *penny*, all that such can afford to pay who frequent it, and who find what their souls seek in it. The gaffs are the dying embers of the fires which burnt in the days of Shakspeare, and we may hope to record a little of their way and material surroundings while they are yet permitted to exist. They contain art elements nowhere else existing, and, for the sake of those who have nothing else, should be helped not crushed out of being.

ON THE TAJ-MAHAL AT AGRA.*

During a stay of three or four years in the East, one meets with so much worth describing that on being asked by friends in the cold civilised West what one has seen, it is sometimes a difficult matter to know what people, countries, customs, or buildings to tell about first; but in the spring of last year it was my good fortune to find myself in the cities of the old Moguls,—Agra and Delhi,—and of all places I have been to, either in the West or East, I unhesitatingly affirm that Agra and the Taj-Mahal stand pre-eminent in the impression made on my mind.

Venice, with its Grand Canal and St. Mark's, numerous palaces and art works,—Constantinople and the Bosphorus, with the Sta. Sophia and Sulieman Mosques,—Cairo, with its beautiful Hassan and interesting Tooloun Mosques, picturesque streets, and Coptic churches and ruins, and the huge ugly pyramids,—and Bejapore, with its big dome and elaborate Ebrahim Roza, all fall into the shade contrasted with Agra and its Taj-Mahal. Its romantic situation, dazzling brilliancy, excessive elaboration, and the particularly refined, though lavish display of wealth in its ornamentation, make it beyond all others a place in which a cold-blooded Caucasian can perhaps realise somewhat of the poetical and luxurious feeling of the voluptuous Easterns.

The Taj-Mahal was built about the year 1040 of the Hijree, or 1662 A.D., about the time of the Restoration, and during the latter years of the reign of Kurreem Shah, the fifth of the Mogul Emperors, grandson of the great Akbar and son of Jehangir. He is more commonly known by his assumed title of Shah Jehan, signifying the King of Worlds. It was erected as a tomb for his wife, the Begum, Ungeman Bunnoo, whose title was Moomtaz Mahal, daughter of Azif Khan, and grand-daughter of the Nawab Ettmadowla. She was also called Taj-Mahal, and Noor-Mahal, which means the Light of the Hareem or Palace. She is immortalised in our own language in Moore's beautiful poem of "Lalla Rookh." She had four sons and four daughters; the youngest daughter's name was Dhahur Arra, at whose birth Taj-Mahal died. Shah Jehan was exceedingly fond of her, and on her death-bed he promised two things, first, "That he would never marry again;" and, second, that he would build for her so magnificent a tomb that it should surpass all others the world ever saw.

The tomb is erected on the left bank of the river Jumna, and Shah Jehan's intention was to have erected another for himself of equal splendour on the opposite bank, connecting the two by a bridge with silver railings, so that after death their souls might be enabled to hold spiritual communion with each other. He went so far as to put in the foundations of the second, when his demise put a stop to further proceedings, and he lies, in consequence, by the side of his wife in her tomb, her sarcophagus occupying the centre position.

* From a paper by Mr. W. Emerson, read at a recent meeting of the Royal Institute of British Architects.

The Taj buildings altogether form a parallelogram. They consist of the Taj proper, placed on a raised dais of white marble, some 20 ft. high and 300 ft. square, situated in the centre of the end of the parallelogram immediately overlooking the Jumna, and flanked on each side by red sandstone buildings, separated from the raised dais by courts about 400 ft. wide, paved with marbles laid in geometrical patterns. One of these buildings is a mosque, the other is of no use but for its architectural effect in contrasting and grouping with the Taj, and is called by the natives the Jawab, which means "answer," and I think very well describes its meaning and use. This mosque and Jawab are of red sandstone and white and black marbles, and inlaid with precious stones, something similar in design to the entrance gateway I shall presently describe. On the floor of this Jawab are outlines of the dome and finials, and some other portions of the Taj, cut in the pavement for the men to work from.

As one drives into the outer courtyard, and pulls up opposite the grand entrance, the beauty and magnificence of the place immediately strike one. The gateway is two stories in height; in elevation, it has a large and deep central recess, a semi-octagon on plan, domed over and flanked on either side by two smaller recesses, those on the upper floors forming galleries, and with large octagonal turrets at the extreme angles surmounted by domes supported on columns and arches. The grand centre arch is also surmounted by a row of eleven little domes on columns and arches, and flanked by slender minarets; the effect of these is particularly beautiful. It is built of red sandstone, inlaid with white and black marbles. The spandrels over the arches are of white marble, inlaid with semi-precious stones in the same manner as the tomb itself, only the work is of much larger design and rougher execution. The gateway forms a square room with large entrance arches on two sides, the outside one being hung with gates, and on the two other sides smaller doorways leading to rooms on either side, and to a staircase which leads to the galleries over these smaller doors. A seat runs round the room, and on one side is a platform for the use of servants, soldiers, and gatekeepers. The lower part of the wall has a dado, formed of panels of white marble, enclosed by a border of inlaid white and black marble in a zig-zag pattern. Over and at the sides of the smaller side-doors are the peculiar little arched recesses used for placing lamps in at the time of a festival. The friezes are inlaid with sentences from the Koran. This gateway is domed over, faced internally with white choonam (or plaster), and ornamented with black lines, radiating from the centre, which accentuate the raised ridges dividing the little hollowed spaces, forming the surface ornamentation of the interior of the dome. The gates themselves are of teak, covered with a plating of bronze, with a raised pattern on it, in shape a mixture of a quatrefoil and rectilinear figure. Through this gateway, at the end of a long avenue of cypress tress, the centre of the avenue being occupied by marble fountains, basins, and flower beds, the Taj-Mahal dazzling the eyes with its whiteness is seen. On walking up the avenue and through the gardens, I could not help feeling it to be a more beautiful place than I ever dreamed of. There is almost every description and variety of flower, and on a hot day the cool sound of the water trickling along the little aqeducts which carry it to all parts of the grounds, the shady walks, and parts of the paths arched over by creepers, covered with flowers of most gorgeous colours, and the mango, guava, orange, lime and loquat trees, combine to make it a most pleasant resort. Leaving the gardens, and and ascending a flight of marble steps and crossing the platform of white marble which in the bright sun dazzles the eyes so as to make them water copiously, and with "Salaam Sahib, "Salaam Sahib," from the old Mussulman priests at the entrance, one finds oneself in the inside of the Taj itself.

The contrast between the bright light outside and the solemn gloom inside is so great, that for some minutes you can see nothing. Gradually this wears off, and one sees tolerably well, though to do drawings inside I was often obliged to get natives to hold candles for me. The plan is an irregular octagon outside, while the centre room is a regular octagon, recessed on each side, and about 60 ft. in diameter, and 80 ft. in height, with circular rooms in each angle of the building connected by passages running all round the centre apartment. Under this centre apartment is a crypt or small chamber, in which are the sarcophagi that really contain the bodies of Shah Jehan and Taj-Mahal. The centre portion of the inner apartment is screened off and contains the show tombs, on which the natives strew flowers, &c.

The way in which light is obtained through the outer chambers and double walls, there being in no case a direct light into the principal room, and what does enter being broken by the trellis work that fills the openings, causes a wonderfully cool and solemn effect on first entering. At each corner of the raised dais on which the tomb is placed are minarets.

The building is two stories high, the centre room running up the whole height of both stories. Access can also be had to the roof which is flat, and has four smaller domes supported on piers and arches, one over each corner circular apartment. The centre chamber is surmounted by a double dome—the one forming the ceiling being about 80 ft. from the ground, and the upper one being about 260 ft. high, and is the principal feature in a distant view of the Taj group. The external elevation of the four principal sides is the same, also the four angle fronts are the same design. The arrangement of these façades is very simple. The principal ones are divided into three parts. In the centre past is a large, well-proportioned, recessed entrance arch, the height of the two stories, and surmounted by a parapet and two minarets, which being carried down to the ground as slender octagonal shafts, form the division between the main central recessed portion and the smaller parts which flank it. These side parts of principal elevations have two arched recesses much smaller than the central one, placed one over the other, and forming the two stories in height, and are exactly similar to angle elevations, being again divided from them by minarets as before described. All these recesses are square on plan, and have at back arched and square-headed openings, which are fitted with the marble trellis-work for admission of light. The domes, which are over the four angles, are supported by piers and arches, the arches being foiled after the Saracenic fashion. The domes spring from a cornice formed of plain projecting slabs of marble, supported by cantilevers.

In the centre rises the huge bulbous dome, which forms the grand central feature of the Taj. It springs from a plain straight circular shaft, which rises to about the height of the tops of smaller domes. A plain twisted bead mould marks the springing. The peculiarity of this and other Mussulman domes in India is the bulbous shape obtained by making them swell out considerably beyond the springing line. This form obtains at Bejapore to a great extent. This dome is topped by a huge gilded finial with a golden crescent. The walls are mainly built of red sandstone, but completely encased with white marble. This is not done in the veneering fashion of Italy and Egypt. Each slab of marble is 4, 6, or even 8 inches in thickness. In the construction of the dome, and other places where it would not interfere with the after ornamentation, it is built up with the walls, laying first a course as slabs of flat masonry, and then a course on edge, thereby obtaining good bond, and an external effect of alternate broad and narrow courses of about 18 in. and 4 in. in depth, so that riveting was never needed.

This method obtained in many places in India, where their building stone was wedged out of the quarries in large flat slabs. About Agra and Delhi, all the buildings, whether of red sandstone or marble, were done in this manner; the interior of the walls was filled in with rubble.

Were it not for the elaborate inlaid work which partakes more of the nature of jewelry than architecture, this building would be the simplest in the world, but very effective, nevertheless,—first, of course, owing to its grouping and proportion. Then its large broad plain surfaces are undisturbed in their repose by any projecting mouldings, while the cool delicate shadows in the large arched recesses cause quite a sufficient balance between the light and shade. The spandrels to arches and the illuminated surfaces are as a rule set back about an inch. The plinth projects about an inch, and a slender string, projecting very slightly, accentuates the parapet. I think these with the bead round the springing of the large dome, and cornices of smaller domes, and the leaves at the apex, are the only particular lines formed by shade throughout the whole external face of the building.

One thing that lends a most peculiar charm to this tomb, is the wonderful delicacy of the shadows caused by the strong reflected lights. The pavement of the raised dais being all white marble, it reflects in so powerful a manner that it reduces the depth of all the shadows by quite a half, if not by more.

One general feature in the ornamentation of the Taj is the inlaid black marble. Every angle, arch, panel, recess, in fact the outline of each component part is marked by lines of black marble, either 1, 2, 3, or more inches in breadth, according to the size or importance of the detail requiring accentuation. This of course accounts in a great measure for the absence of any mouldings, and I am inclined to think this method of ornamentation, or more properly accentuation, disturbs the grand repose of a building much less than any other method employing shade as the means.

Probably the greatest ornaments to and most perfect pieces of work in connexion with the Taj are the four minarets at the corners. They are about 200 ft. high and about 20 ft. diameter at the base; but the proportion of these is so subtle, that the slightest alteration, by either increasing or decreasing the diameter, or taper, or height, one feels would immediately spoil their effect. They are most elegant, but have not the starved appearance of the minarets of Egypt, Constantinople, and Delhi. They are three stages in height. At each stage a light balcony, supported on cantilevers, running round the tower, and they are surmounted by domes on gilt columns, and foiled Saracenic arches and gilt finials. Winding stairs take one to the summit, to which stairs access is obtained by means of square-headed doors.

I mentioned before that each course of white marble is divided by a narrow course of black, which in the distance gives an appearance of very thick joints, and makes the circular shaft tell out wonderfully in perspective.

The mausoleum itself is ornamented to a height of about 6 ft., with panels, forming a sort of dado, edged with a border of inlaid work in semi-precious stones of various colours, and each panel being carved in relief with flowers growing out of pots—the lotus, rose, &c. The carving of these is very beautiful, finished as finely and as polished in every little detail, as any Italian work, and with all the freshness of design and arrangement of Mediæval art. Around the arches the Koran is illuminated in black marble. In this manner, it is said, the whole Koran is inscribed on the Taj walls. The spandrels of the arches are inlaid with a flowing ornament of graceful design, in semi-precious stones. The angle shafts, forming minarets, have zig-zag lines inlaid in black marble. Under the parapets is a running pattern, also inlaid; and in the parapet itself is an inlaid pattern of bold design, in coloured stones.

The interior is, in the same manner as the outside, ornamented with a carved and inlaid dado; but the carving is richer, and the inlaying more elaborate.

The dome, which is very dark, is covered all over with the pattern peculiar to Indian Mussulman architecture, which is formed by lines radiating from the centre, crosswise, and the spaces thus formed (which of course increases in size as the lines approach the springing of the dome) are hollowed; by this means the radiating lines are in reality formed by the ridges dividing the hollowed spaces. This is often elaborated to such an extent that it is impossible for the eye to follow the pattern.

I now come to the part of the building which is the most wonderful and elaborate part of it all, namely, the tombs and the screen enclosing them, all of purest white marble. The screen encloses an octagonal space. Each side of the octagon is divided into three bays: the centre bay of the side facing the entrance door is an archway into the enclosure: all the other bays are like to each other and of similar design to the part at the side of the arch. At each angle, and between each bay, are posts supporting perforated screens, each of a single slab of marble. It is very Italian in feeling. An eighth portion of it contains the whole design; this is reversed and turned upside down to form the whole screen. It is, I should think, the most elaborate piece of marble perforation in the world, and is polished all over; both sides are finished alike. The screens are surmounted with a sort of balustrade of carved and inlaid work.

But the most extraordinary part is the inlaid work on the pure white marble posts, rails, arch, and tombs. The tombs, both in the enclosure and in the crypt below, are simple parallelograms about 2 ft. high, with a small sarcophagus in the centre of each, on a plinth formed of two cymatium members, and fillets, and the top slab having an ogee mould.

The inlaid work is most elaborate, representing all sorts of flowers, worked in semi-precious stones—the stones carefully picked for each particular leaf, so that all shading and drawing of leaves is obtained by the graduated natural colour or marks in the stones themselves. At the side of the central tomb is the following inscription, in Persian:—"The splendid tomb of Unjeman Bunnoo Begum, whose title was Moomtaz Mahal, was made in 1040 of the Hijree," and on the side of the other is:—"The magnificent tomb of the king, inhabitant of the two heavens, Ridwan and Khool, the most sublime sitter on the throne of Illeeyn (*i.e.*, starry heavens), dweller in Firdoos (*i.e.*, Paradise), Shah Jehan Badsha Gazee, peace to his remains, heaven is for him. His death took place the 26th day of Rujub, in the year 1076 of the Hijree. From this transitory world eternity has carried him off to the next."

In some of the roses, which are no bigger than a franc, there are thirty pieces of stone, and the jointing is generally scarcely visible. It is, in fact, jewelry. Indeed, in the centres of the flowers on the head of the tomb there were originally large emeralds and rubies, but these were stolen during the Maharatta wars. The ornament is in some places of a flowing pattern; in others, like little trees in full bloom, with magnificent flowers. The colours of the stones are arranged with such taste, and the effect is so quiet, that it is only after looking about for some time that one finds out what it is that gives the interior such a rich appearance. Not a single flower forces itself unduly on the eyes, and I have seen Europeans walk for the first time into the Taj, and go all round and out again, without ever noticing anything particular in the ornamentation of this screen and tombs. What they do notice at once is the soft echoing of every little sound. A musical note echoes and re-echoes through the dome, gradually and softly dying away. The natives believe these voices to belong to the unseen heavenly bodies, who watch over Noor Jehan and her husband. The most delicious harmony I ever heard was some singing by ladies in this tomb. The interior has the most solemn effect on one's mind,—there is an amount of pathos in it that causes feelings in a sensitive person much the same as reading an affecting melancholy love-story, so much so that it almost forces tears to one's eyes.

The whole cost is said to have been about three millions of our money. It took seventeen years in building, and the labour was all forced—the workmen being kept on a daily allowance of rice. Orientals say it was built by one Isa Mahmoud, an architect sent from Turkey to Shah Jehan for the purpose. Others say a man named Austin de Bordeaux, a French architect, designed it. As to whether purely Oriental, or in some measure European, I should be afraid to give a decided opinion. I think there is much of Italian feeling in the screen, and also in the four minarets and some details of the cantilevers. But then at Bejapore and other places in India I thought the same with regard to many details, and no one seems to doubt that the art of Bejapore is purely Oriental. Still it is possible that Italian artists may have had something to do with it in detail; and I believe in some old manuscript accounts, mention is made of payments to a foreign artist. But this may have alluded to Iza Mahmoud or Persian artists. It was built at a time when Italians were to be found all over the world, fleeing from ducal tyranny, and some may have found their way into the centre of India; and they could have ingratiated themselves in no more favourable manner with the luxurious Mogul Emperors than by assistance in the art of magnificent building.

The Spade and the Priest.—In the *Débats* there is a letter from Father Hyacinthe, who offers his services for the defence of Paris. A priest, he says, is not allowed to take up the sword, unless in times of extreme peril; but there is nothing to prevent him from doing what he can with the pick and shovel. He therefore holds himself at the orders of the mayor, to whom his letter is addressed.

THE SUSSEX ARCHÆOLOGICAL SOCIETY: WORTH CHURCH.

The annual meeting of this society, held last week at Rye, was not so well attended as the meetings usually have been. A little museum of local antiquities was exhibited, and the interesting parish church was of course visited.

There was no paper read in the church, or in the townhall, relative to the antiquities of the place; but the committee provided guides to accompany the visitors to the most notable. Some visited Ypres Castle, named from William de Ypres, a distinguished general of King Stephen's, who died in 1162. Pecocke's school, alluded to in Thackeray's last novel, "Dennis Duval," was also visited, and the Mint, the fine old Landgate, and Queen Elizabeth's Well.

Whilst these places were being viewed, a large detachment proceeded in an omnibus and on foot to the castle at Camber, a military fortification, erected by Henry VIII., for the protection of the coast between Winchelsea and Rye. It is on the south side of the road between these two towns, and about the same distance from each. After a pleasant journey across the marsh, the party seated themselves on the grassy slope beneath the massive keep or central tower, and listened to a brief history of the place from Mr. Mark Antony Lower. It appears that Camber (before Rye), was a port to which the Venetians traded in very early days, but it was not till the Pope had stirred up divers kings and princes of Europe to attack the kingdom of Bluff King Hal, and utterly destroy the people thereof, that the fortification in question was built. The king and some of his most trusted counsellors went round the south coast and ordered many defensive works to be constructed, the principal of which were at Walmer and Camber. The outer walls of Camber, the large round keep, the bastions surrounding it, the curtain walls between, and the gateway are tolerably well preserved, but in the interior the *débris* has so filled up the place that the top of the outer walls can be reached without difficulty. The castle does not seem ever to have been the residence of a family; it was only garrisoned and kept by a few soldiers, who were not very highly paid by the Government. The pay of the captain in charge amounted to the sum of 2*s.* a day.

At the luncheon, Mr. J. G. Dobson, M.P., presided, and various little speeches were made. We need only mention one, namely, that made by the Rev. W. Powell, one of the hon. secs., in reply to a toast to the Prosperity of the Society. The rev. gentleman, referring to an article which appeared at the latter end of last year in the *Builder*, respecting the destruction of Worth Church, is reported to have said,—

"The society had been made the butt of the editor of that journal, who had made this society responsible for all the faults of the architect, all the faults of the minister, and all the faults of the churchwardens, over whose acts this society had no control. A series of attacks had been made upon the Sussex Archæological Society by the *Builder*, and in some way or other these gatherings had been connected with the destruction of Worth Church; for it had been said that if the members and their secretaries had spent some of the time consumed in pic-nics and making stupid after-dinner speeches in saving an ancient church which had been pulled down under their very eyes, they would have done some good. All that he could say, in reply, was, that there were two classes of churchwardens and of ministers, one of whom were archæologists and the other whom he might call non-archæologists. He was not aware that there was any solidarity between this society and non-archæological clergymen and laymen; but if he, or the society, could prevent the latter from destroying their churches, it should be done. If there could be a Court of Taste instituted, to which Mr. Whitechoker or Mr. Blackacre could be cited to appear, he should rejoice; but a minister and his churchwardens had the legal power to do what they liked to their church, while the society had neither legal nor equitable right to prevent what was done."

Gentlemen who teach the "Word" should be precise, not to say truthful. We never used the expression attributed to us; we never accused members or secretaries of "making stupid after-dinner speeches," though we have some difficulty in refraining from applying the epithet to Mr. Powell's last effort. We have taken the pains to look back to the article in question, and what was said was this:—

"Our regret and our anger are for the destroyed chancel, and our fear is for the chancel arch, a most interesting example; and for the characteristic 'long and short' work all over the remainder of the building. Some blame surely attaches to the Sussex Archæological Society, *so busy with its excursions and its dinners!* Did they do nothing to try and save the building, the most precious in respect of its uniqueness in the whole county? Where are the Rev. W. Powell and Mr. F. Barchard, the honorary secretaries? Have they heard nothing of these doings? or worse still, have they heard, and yet not moved?"

So far as this may be an attack, we repeat it with increased emphasis. If the secretaries had called a meeting at the proper time, and aided locally the efforts that were being made elsewhere, the ancient chancel might have been saved, and Sussex might still boast the only Saxon church in England with its enclosure walls intact. Of ourselves, we should not have referred to the matter again. We did our best, and failed, and there an end. But the least that we can expect from those who ought to have interfered in the same direction, and did not, is a truthful if not grateful reference to the endeavours we made on purely public grounds.

THE ROMFORD SEWAGE FARM.

Day by day the opinions we have held and advocated for years as to the irrigation of land with sewage are confirmed and spread.

Breton's Farm, Hornchurch, was purchased some time ago by the Romford Local Board of Health for the disposal of their sewage by irrigation, and let by them to Mr. W. Hope. On Tuesday, the 9th, Mr. Hope received a number of gentlemen interested in such matters, for the purpose of inspecting the result of the application of sewage to the land and crops which has, notwithstanding the difficulties that surrounded him in the first place, been carried out with a considerable degree of success.

The sewage is first pumped to the top of the engine-house, and then conveyed in sheet-iron troughing to about the centre of the farm, where it branches off in all directions, there being outlets at short intervals, which can be opened for the discharge of the liquid, or plugged up, or even set to a certain quantity, as required. The sewage eventually flows into channels of concrete or earth, and thence again into smaller off-shooting channels, which run along in the crown of the beds, the ground having been originally laid out in proper inclines; these smaller channels are then dammed up where required, and the sewage overflows the beds. Of course, there is a large amount of effluent water which percolates through the soil, and this is carried back again in a state of purity to the tank, or down to the river, at pleasure, by drain pipes, laid at a depth of 6 ft. from the surface, and at a distance of 150 ft. apart. The effluent water is clear and sparkling.

Mr. Russ (of the firm of Messrs. Russ & Minns, engineers, who designed and executed the outfall works) attended, and gave information, as did Mr. J. R. Harding, the Board's surveyor, and Mr. Avis, the bailiff on the farm. One of the crops to which attention was drawn was a piece of Italian rye grass, sown on the 19th of March, since which four crops have been cut, averaging 7½ tons per acre, and sold for 1*l.* per ton on the ground. Close by was a piece of Dalmahoy potatoes, planted on the 2nd of April, which were producing upwards of 1½ cwt. per rod, and worth about 25*l.* per acre. Some "Early Rose" kidneys were also shown, which produced ten or twelve at each root, many being from 4 in. to 7 in. in length. Some beans and peas, sown on the 2nd of April, produced—the former 9*l.*, and the latter 15*l.* per acre, without the straw. A little further on was a specimen patch of clover, sown on the 23rd of May, which was very thick, and about a foot high. Adjoining, were about four acres of transplanted mangold wurtzel, looking strong. Another crop of the same kind exhibited some very fine roots, many of the "globes" being over 2 ft. in circumference, and some of the "long" 2 ft. in length. A crop of intermediate carrots, about 4 acres in extent, sown on the 4th of April, a month later than they ought to have been. Some of these have already been cleared off and sent to market, where they fetched at the rate of 41*l.* per acre. Those that still remained had been sold as growing at 21*l.* per acre, it being worth the additional amount to prepare and get them to market.

Amongst those who after the view spoke on the subject,

Mr. Chadwick said it was a great gratification to him to see that which was the pestilence of their towns, the waste of manure, by this farm made profitable. He hoped—it was a long time ago when he predicted it—that that waste of manure, which in towns meant pestilence and disease, would, in the agricultural districts, soon mean high and enhanced production. He was quite sure that they would see, especially under such leadership as they had seen that day, that that waste which desolates towns and lowers the

condition of the population, would, in the agricultural districts, give the highest amount of production of food, and would elevate the condition of the population. He believed that this movement would lead to an enormous increase of the productive power of the soil, not only in this country, but, through the example set, to the countries abroad. He hoped, for the sake of this country and for the sake of the example, that sewage irrigation might have due support and due success.

Mr. Rawlinson would take credit for having striven to understand whether sewage ought to be treated as the waste product it had been considered, or whether it ought to be treated as they had seen it treated that day; and he had come to the conclusion that the proper place for sewage was the land. He had been a member of several Royal commissions, and sat upon one for eight years, which had been appointed to inquire into the best means for utilising town sewage. During the eight years they examined all the places in Great Britain where sewage had been or was attempting to be utilised. They reported and drew up conclusions in which they said that town sewage could be utilised; circumstances might so intervene as to prevent its being utilised for the profit of the town, that was, direct money profit; but it should always be utilised, because of the very great profit to the community at large. Romford was so situated that they were able to get rid of their sewage without its being any burthen to the community; and some of them would, no doubt, remember that at the inquiry he held he told them that if proper means were taken to utilise the sewage on the land, instead of being a burthen, as many of them feared, it would really relieve their rates, get rid of litigation, and put them in a position of comparative comfort. From what they had seen to-day he thought there was no need to fear the result. He hoped they would soon have sewage generally applied to the land, and have that done which brought produce and food to the multitudes of our country.

Mr. J. B. Denton said he happened to be a colleague of Mr. Hope's upon a committee, which connexion necessitated his presence upon this farm occasionally. The first of those visits was several months ago, and he would declare, as a man of considerable experience in agricultural matters, that he never before had seen a more forbidding instance, or a more forbidding task for any man to undertake, than that which Mr. Hope had on this farm. Now, he came here to-day, after two previous visits, when he felt much dispirited on account of his friend, as he had thought that the most gallant spirit would be beaten,—not ultimately, but immediately. He feared the weeds would overgrow him, and that, moreover, the arrangements for the delivery of the sewage were not so perfect as they ought to be. He felt in fear that his friend would be encumbered with difficulties which he could not rationally be expected to overcome; but he was bound to tell them now that he never walked over a farm on which there were more certain instances and proofs of success. He saw the expanding growth which told him that sewage, properly applied, would do all that they had expected.

These are surely three good witnesses.

ARCHÆOLOGICAL EXCURSIONS.

The Suffolk Institute of Archæology.

The members of this institution have made their annual excursion, and this year chose as the scene of their operations a district which has not often been visited by such a society. The *rendezvous* was Halesworth, and about a score members assembled. An excursion had been planned, which took the party a somewhat long round, in the course of which Holton, Westhall, Reydon, Southwold, Blythburgh, Thorington, and Bramfield churches were visited. The day turned out an admirable one for the excursion, through a picturesque, well wooded, and fertile country. The first place visited was Halesworth Church. Here the party were met by the vicar, the Rev. V. J. Stanton, and Mr. R. W. Burleigh, who pointed out the various objects of interest. Holton Church was the next place visited, and the party were met by the incumbent, the Rev. R. S. Beloe. The church has a round tower, and is principally new; but the style of the older portions is late Norman, or a transition from Norman to Early English. The tower was originally thatched. The party then took their seats in the conveyance, and proceeded to Westhall Church, which has many points of interest to archæologists.

The Secretary (Mr. E. M. Dewing) said he had a paper given to him by a gentleman well known to those present, Mr. Rix, and which he read.

A long and pleasant drive through country roads brought the party to Reydon Church, a plain building, apparently belonging to the Perpendicular style. The party was about to leave, when one of them noticed in the floor of the porch what was thought to be an altar stone, and on its being examined the supposition turned out correct. The stone was 6 ft. 3 in. by 1 ft. 11 in., and had been used in paving the porch. The excursionists then proceeded to Southwold, where they visited what is said to be one of the finest churches in the country. It is dedicated to the marytr king, St. Edmund.

Mr. R. M. Phipson pointed out the main points of interest. Rev. W. Sewell gave a description of the rood-screen. The party then went to the Lecture Hall, where a small museum had been arranged by Dr. Blacket. Luncheon was provided at the Swan Hotel. The chair was taken by the president, Lord John Hervey, and the vice-chair by the Rev. S. B. Turner. After a short stroll down to the Gun Hill and the beach, the carriages were once more put into requisition, and the horses' heads were turned for Blythburgh Church, which is now almost a ruin. Mr. Truman, a resident in Blythburgh for the last fifty years, pointed out the place where the arch fell in 1863, and a part of a stone coffin which had been found, together with other matters of interest. The company then walked to the church, where Mr. Raven read a paper in the church. The next stoppage was at the little church of Thorington, which is one of those with a circular tower, round which is an arcade of shallow panel-work.

Bramfield was the last church visited. It has a peculiarity in the fact that it has a round tower which stands detached from the church. The reason for this has been discussed, and the most probable seems to be that the church was originally built without a tower, and that afterwards, wishing to have one, but not wishing to block up the west window, the tower was built away from it. The company then returned to Halesworth, after a pleasant day.

The Bucks Archæological and Architectural Society.

The visit of this society was to Marlow and Medmenham. The company embarked at Marlow on board a barge which conveyed them up the Thames to Medmenham. There was a large party of ladies. The first point of debarkation was Bisham Abbey, which, for its historical associations, is described as the "most interesting house in Berks." The party were met on landing by Mr. G. Vansittart, the present possessor, who conducted them over the principal apartments, and explained the various features of interest connected with them; Archdeacon Bickersteth also drawing on his archæological lore for the same purpose.

Leaving the Abbey, the party proceeded to the church, where they were received by the vicar of Bisham, the Rev. E. Powell.

A little further up the river is the picturesque village of Hurley, surrounded by richly-cultivated woodlands, which the party next visited. Here is a very ancient church founded by Geoffrey de Mandeville, a famous soldier at the battle of Hastings, in the 11th century.

The voyagers having once more embarked, proceeded to Medmenham Abbey, a few miles further up the river on the Buckinghamshire side. In the middle of the last century the abbey was tenanted by an order of monks other than those who adopt fasting and self-denial as their motto. This was the notorious Medmenham Club, a society of wits and men of fashion, who, under the title of the Monks of St. Francis, whose habit they assumed, converted the ruins into a convivial retreat. The association comprised John Wilkes, Charles Churchill, Bubb Doddington, and others. The spirit of the society was shown by their putting up over the door of their place of meeting the motto of the actual Order of St. Francis, "Fais ce que tu voudras;" and it is understood that they took full advantage of the permission, their wild orgies obtaining for them in the publications of the day the designation of the "Hell Fire Club." It is stated that one night, in the midst of their orgies, the profligate party were overwhelmed with terror at the apparition of a huge ape, hideously attired, which had been lowered down the chimney. They believed for a long time that the arch fiend himself had appeared among them, and such an effect had it on them that their meetings were then finally broken up. The Franciscans always slept in cradles, and a fragment of the cradle of Wilkes is still shown here as a relic. Over a door in the ivy-covered gable their motto is still to be seen.

From Medmenham the company took a detour to Danesfield, to inspect the horseshoe entrenchment, near the residence of Mr. C. R. S. Scott Murray. The company, descending the hill on the other side by winding walks, amongst woods of holly, yew, and box, which clothe the steep escarpment towards the river, soon found themselves at the side of the barge which had been brought round to await them, and having embarked once more, proceeded on their homeward voyage. Refreshments were provided in the cabin during the day.

The annual meeting of the society was then held, the company being seated outside, Mr. Du Prè in the chair. Several new members were elected.

Dr. Bickersteth then delivered an address on the River Thames; in which he assigned the source of that river to the highest ground of the watershed of the Thame in the parish of Stewkley, in Bucks.

The Rev. J. Baines, rector of Little Marlow, read a paper on the nunnery which formerly existed at Little Marlow.

The Rev. F. Ashley, of Wooburn, next read a paper on Wooburn Church.

The company soon after arrived at Marlow, where, on landing, vehicles were in readiness which conveyed them to Spinfield House, the residence of Mr. J. Carson, who entertained the society. The dinner was served *al fresco* on the croquet lawn.

The party afterwards drove back to Marlow, and from thence to the Marlow-road Station, where the 9·20 train conveyed them *en route* to their respective homes.

The Surrey Archæological Society.

The annual day-out of the members of this society has also taken place. A fine day favoured the excursion. The members and their friends, making quite a large party, met at Redhill Station, where conveyances were in waiting to take them through rural scenery to the places it had been decided to visit. They drove off, party after party, to Nutfield, and at once walked off to the church, where the rector, the Rev. Dr. Briscoe, showed to the visitors some rare old books which he had collected at considerable trouble and expense. A paper descriptive of the edifice in which the company were assembled was read by Mr. Alfred Heales, F.S.A. The party then drove off to Bletchingley, where the church was visited, and a description of it was given by Mr. Granville Leveson Gower. They then proceeded by a very pretty route to White Hill, after which they took walking exercise along "The Pilgrim's Way" (from Winchester to the West of England), to the shrine of St. Thomas à Becket. Striking out of the "way," over some underwood and brambles, they reached the "Cardinal's Cap," whence there is a pleasing and expansive view of the Weald of Kent and Surrey. This spot, which is also known as War Wood or Coppice, is supposed to be the site of an old British or Roman camp and fort, all the traditions and probabilities as to which were expounded by Mr. J. W. Flower, F.G.S., of Parkhill, Croydon.

The party then retraced their steps, but on the way were invited into the grounds of Mr. W. Long, at "Arthur's Seat," from whence there is a picturesque view. Here Mr. Long presented refreshments. The next point of interest was a half-timbered house of the sixteenth century, in Brewer-street, Bletchingley. The house was described by Mr. Charles Baily, who said it was a very good specimen of a Surrey yeoman's house in the sixteenth century. The next visit was to Pendell Court, the residence of Mr. George Macleay, the president of the society, who had caused to be provided a cold collation in a spacious booth in the grounds.

The Cambrian Archæological Association.

The twenty-fourth annual meeting of this society will commence August 23, and continue until the conclusion of the week. The objects principally visited will be those of the earliest pre-historic character, in which class of antiquities the county of Anglesea, and especially

the western portion of it, is richer than any other district in the principality. There are also numerous remains of the earliest dwelling-houses, usually called "Cyttian," some of which have lately been excavated and examined, and have thus brought to light much valuable information as to the mode of life adopted by a race probably long anterior to the forefathers of the present Welsh. Archdeacon Wynne Jones, the proprietor of the Treiorworth estate, will preside. Several interesting papers have been promised.

TIMBER IMPORTS AND PRICES, AND TRADE RETURNS.

An interesting statistical return, just published, gives the quantities of timber imported from foreign countries and British possessions, from each year, from 1855 to 1869 inclusive. The quantities show considerable fluctuations in the different years. In 1855 there were 450,714 loads of timber imported from foreign countries, and 457,800 loads from British possessions; in 1869 the quantities were 832,317 loads of foreign, and 443,130 loads from British possessions. These figures give totals of timber not sawn or split, of 908,514, and of 1,275,447 loads. From 1861 to 1866, inclusive, the quantities imported were considerably larger, reaching to 1,631,151 loads in 1865. The imports of sawn or split timber show less fluctuation, rising from 934,579 loads in 1855, to 2,329,962 loads in 1869. Of the latter quantity 1,576,695 loads were from foreign countries, and 753,267 loads, or about the half, from British possessions. The imports of teak, staves, and mahogany, show great fluctuations. The quantities imported in 1869 were, respectively, of teak, 40,062 loads; of staves, 60,450 loads, against as much as 112,385 loads in 1857. Of mahogany, the imports in 1869, amounted to 47,252 tons, against 37,954 tons in 1855. The computed real value of the timber, not sawn or split, imported in 1869, was 3,856,902*l.*; sawn or split, 6,253,072*l.*; teak, 453,856*l.*; staves, 536,068*l.*; mahogany, 359,748*l.* The average prices as fixed for the computed real value were, per load, from Russia and Prussia, in 1868,—Fir, 2*l.* 6*s.* 2*d.*; oak, 3*l.* 13*s.* 7*d.*; from Sweden, fir, 2*l.* 3*s.*; oak, 3*l.* 5*s.*; British North America, fir, 3*l.* 10*s.*; oak, 5*l.* 15*s.* 6*d.*; United States, fir, 3*l.* 14*s.* 7*d.*; oak, 4*l.* 10*s.* For deals, battens, boards, &c., per load, from Russia, 3*l.* 2*s.*; Sweden and Norway, 2*l.* 10*s.* 1*d.*; British North America, 2*l.* 12*s.*; United States; 3*l.* 15*s.* Staves, from Prussia, per load, 10*l.* 19*s.*; United States, 7*l.* 17*s.*; and from British North America, 8*l.* 9*s.*

The extraordinary growth of the trade of the United Kingdom is shown in a comparison of the imports from, and exports to, foreign countries and British possessions. In 1855 the total imports were of 143,542,850*l.* real value, and in 1869, 295,428,967*l.*: total exports in 1855, 116,691,300*l.*, and in 1868, 227,778,454*l.* In 1855 the proportion per head of the population of our imports was 5*l.* 3*s.* 2*d.*, and of our exports, 3*l.* 8*s.* 10*d.* In 1869 the proportions per head of the population were, of imports, 9*l.* 12*s.* 1*d.*, and of exports, 6*l.* 3*s.* 7*d.*

In 1857 the proportion of the public revenue of the United Kingdom was 2*l.* 12*s.* 1*d.*, including charges for collection; and for 1869-70, 2*l.* 9*s.* 3*d.* per head of the population. In 1857 the proportion per head of the population of the National Expenditure of the United Kingdom was 2*l.* 14*s.* 4*d.*, and in 1869, 2*l.* 4*s.* 9*d.* The local taxation of the United Kingdom for 1870 is estimated at 20,500,000*l.* for England; 2,000,000*l.* for Scotland; and 2,500,000*l.* for Ireland, or 25,000,000*l.* in all, which is equal to about 16*s.* per head of the population. If the amounts raised for public and local purposes be added together, the total taxation of the United Kingdom in the year ended 31st March, 1870, would be about 100,500,000*l.*, or 3*l.* 5*s.* per head of the population.

In 1857 the total amount of the National Debt was 835,676,254*l.*; it stands, in 1870, at 800,681,428*l.* In connexion with this it should be stated that, from 1855 to 1869, Customs and Excise duties and taxes have been repealed amounting to 40,609,993*l.* in all, while taxes have been imposed amounting to 17,700,684*l.*; the actual diminution being 22,609,309*l.* This relief has been given in the reduction of burdensome duties on many articles of prime importance, if not necessity, indeed, such as tea, sugar, coffee, butter, cheese, eggs, rice, fruits, &c., and in sweeping a host of articles from the tariff which greatly complicated it, hindered trade, and involved a disproportionately-increased cost in collecting the revenue. Among the repealed Customs duties are those on grain and breadstuffs, which, although almost apparently only nominal, really imposed a tax of nearly a million sterling per annum upon the first necessaries of life. Among the other taxes repealed, the "taxes on knowledge," on the light of the mind, should not be forgotten, on the one hand, nor those upon the light of the body, on the other. It was truly, as literally, an enlightened policy to relieve books, newspapers, and paper from the burden of a tax, as it was also to abolish the window-tax. It should be satisfactory to all men that this policy has been so signally successful in financial results, as well as successful in a far higher sense.

SOUTH KENSINGTON MUSEUM.

A Return, published annually, by order of the House of Commons, gives the following particulars relating to South Kensington Museum,—cost of buildings, cost of arrangement, purchases, estimated value of gifts, estimated value of objects on loan, and number of visitors for each year since 1860. This paper, which has just been issued, shows that the cost of buildings, including repairs of buildings and schools, from 1857 to 1860, was 41,127*l.*; the cost for 1869, to 31st March, to which date the return is made up, under this head was 43,273*l.*, a higher amount than in any previous year. The total cost under this head from 1857 has been 306,372*l.* The cost of arrangement is included with that of general management. This amounted, from 1857 to 1860, to 127,109; in 1869, to 86,520*l.*, also the highest amount for any year, by about 12,000*l*; the total cost of management for the whole period, 630,555*l.* The amount expended in purchases of works of art and science, books, &c., was, from 1857 to 1860, 53,189*l.*; in 1861, 23,100*l*; in 1869, 21,097*l.*; from 1857 to 1869, 224,873*l.* The gifts for the whole period, exclusive of Sir Joseph Whitworth's 100,000*l.* for scholarships, are estimated at 160,000*l.*, or, say, 260,000*l.* in all. The estimated value of the loans to the exhibition is 300,000*l.* yearly, for the last eight years. The contents of the special exhibition of 1862 were estimated to be worth above 2,000,000*l.* In 1862 there were 1,241,369 visitors; in 1869, 1,043,654: total visitors from 1857 to 1869, 9,056,818.

CAMBERWELL CHARITY ESTATE COMPETITION.

For laying out the Camberwell Charity Estate, in the Old Kent-road, thirty-six designs were sent in, and were referred to Mr. Pownall.

Mr. Pownall reported that "Spes" was entitled to the first premium of twenty guineas, and "Vigilans, No. 1" to that of ten guineas.

The letters of the competitors showed that the first successful competitor was Mr. Alfred Wright, architect, No. 68, Knowle-road, Brixton; and the second, Mr. A. G. Hennell, of Southampton-buildings.

THE NEW LAW COURTS.

We place before our readers the plan which has been at last determined on for the Courts of Justice. A few brief particulars will be found in our last.*

THE REREDOS, CHICHESTER CATHEDRAL.

The central portion of the new reredos has just been erected; the two wings, together with some figures for the centre, are at present postponed. In designing the reredos, the principle kept in view by the architects, whether right or wrong, was to emphasise the choir as distinguished from the presbytery beyond, by rendering the reredos so important a feature that the eye, whilst taking in the presbytery, would at once distinguish the termination of the choir, and further, to give it such height, that, looking from the nave, the eye would rest upon it, and the throne and stalls, would be subordinate.

The work has been executed from the designs of Mr. W. Slater and Mr. R. H. Carpenter, the cathedral architects, by Mr. Forsyth, of London.

It is difficult to present a clear description of the work, but a few particulars may be given. It consists of a deeply recessed arch filled with sculpture, with an inlaid and carved pediment over; the front order of the arch being supported over the communion-table by massive pillars standing on each side of it. Behind the table the arch is recessed about 2 ft., to receive the sculpture, the height of which is 13 ft., and the width 8 ft. 6 in. It represents the Ascension conventionally treated. The figures are all above life-size, and sculptured in Caen stone. The figure of our Lord is slightly raised from the surrounding apostles; his feet rest on a cloud, and a *vesica* surrounds him. He is looking down on the apostles, with his hands raised in benediction. The face is on the type of a figure at Rheims Cathedral, as are the flat and carefully-studied folds of the drapery. The apostles stand and kneel around: prominent amongst them is the figure of St. John. He and all are gazing, with varied expressions of countenance, on the departing figure of their Lord. On each side of the vesica are figures of angels, bearing scrolls and various instruments of music. The design for the sculpture was arranged by Mr. Clayton, who assisted in the completion of the model. The sculpture is raised about 2ft. 6 in. above the top of the table, immediately over which is a projecting alabaster super-altar supported on moulded corbels. Immediately above the super-altar and below the alabaster string course under the sculpture, are a series of panels, nine in number, formed of pure white alabaster. These will be filled with plates of gilded metal, covered with jewels and precious stones. As before mentioned, on each side of the altar-table are two advanced pillars. These have a central shaft of Scotch porphyry, with four detached shafts of green serpentine, with moulded bands and bases of dark serpentine. The caps are richly carved on the type of the beautiful work of the presbytery, and with abaci of alabaster. The arch is deeply moulded on the same type, and has on its front surface of mouldings numerous small cusps, both inlaid and with terminating bosses of alabaster and spars. The upper moulding of the pediment above is carved with a running pattern of conventional foliage, supported at the bottom by shafts of green marble, the carved capitals of which will serve as supports of figures of St. Peter and St. Paul. Springing from the sloping mouldings of the pediments are carved corbels, which will support kneeling figures of angels. The finial also will support a standing figure of an angel bearing a crown over the head of the Lord in the sculpture below them, uniting the whole in one composition. The centre of the tympanum of the pediment is filled with a deeply-moulded arch of alabaster, with spars, having in its centre, on a marble mosaic ground, the emblem of the Holy Trinity, to whom the cathedral is dedicated. The spandrels are filled with porphyry, with mosaic borders of green marble and porphyry. The recess in which the sculpture stands has two orders of moulded arches resting on shafts of serpentine. The back of the reredos next to the presbytery is at present unfinished. It has a bold arch and pediment of the same form as in the front, but the carving and inlaying are at present deferred, the shafts of grey Derbyshire marble being alone inserted. It may be mentioned that the total height from the floor to the top of the finial is 26 ft. 6 in., and from the floor to the springing of the arch is 13 ft. 6 in. The wings will be of the latter height. Each will have three arched recesses with carved and moulded arches, resting on a grouping of serpentine shafts, with a cornice and carved cresting above. The space below will be filled with mosaics in marble surrounding bas-reliefs, representing the principal event of the life of the saint sculptured above.

* See p. 640, *ante*.

The British Hospital for Diseases of the Skin.—This institution, which for many years has maintained a crowded out-patient department at No. 56, Great Marlborough-street, Regent-street, and more recently another of equal extent at No. 13A, Finsbury-square, has lately been anonymously presented with a 1,000*l.* Bank of England note. The committee of management have devoted this addition to their resources to the purchase of the lease of their premises in Great Marlborough-street, and to the establishment of an in-patient department, which is much needed for the proper treatment of the severer cases of disease that are daily applying for relief. But they want further aid to enable them to do so.

ART AND WAR.

Sir,—War at all times, whether it be for the most righteous cause, or the most indefensible, is a calamity. Who knows the limits of such a war as that now commenced, and the loss civilisation and mankind will sustain by its occurrence? It is the duty of all to speak forth truly, without any subtle reserve at the present moment. What loss may not the savagery of man and the barbarism of war entail upon the universe? Who knows not that history, in the course of war, is ever and ever repeating itself? Who knows not that thirst of power and despotism are never careful to discriminate; and that to preserve an enemy's monuments would only be to enrich her at the expense of her assailant? This is the war view of the question. The very same course of action that was prosecuted in the days of Alexander and Cæsar was carried out centuries later; and the same warlike excesses, as were perpetrated in the Middle Ages, were perpetrated half a century since, and are still likely to be imitated, if a European war ensue.

The prospect for architecture and the other arts is, therefore, at the present moment, a rather discouraging one for us all. It is not that forts, bastions, and barracks may be tumbled, and towns and cities undergo wreck and ruin. Much more than this. Amid this inevitable destruction and terror the finest monuments of human genius and skill will perish; saintly and superb piles of architectural grandeur will be rent and shattered; and, while evil passions and bloody instincts surge rampantly, acts of violence will be committed that may affix an eternal stigma upon the nation that gave them birth. War is a foe to civilisation, and wherever architecture and art cease to progress, mankind must retrograde, for nothing in nature can stand still.

Look upon the question in any way we may, it is clear that war is not only inimical to man's best interests, but subversive of the very foundations of society. We are not speaking of the war as members of the Peace Society, but we are simply viewing it in a rational way.

In viewing the war in an architectural aspect, and eliminating for the moment Great Britain from the field, still we cannot but feel the most grave concern for all the interests involved and jeopardised on the Continent. If public institutions, libraries, colleges, churches, and schools passed unscathed through the storm, and if even in the public forum the national galleries, museums, and public statues remained unmoved and unpillaged, sufficient injury, notwithstanding, would be otherwise accomplished by the continuance of the war. The whole mechanism of society would have been unhinged, and a moral, intellectual, and commercial collapse would show itself in every channel of the countries at war. Who supposes, or can reasonably suppose, that injury would not overtake the national monuments or institutions of a nation at war with another? Would Prussia, in her present mood, if her legions got footing or entry into Paris, withhold from the work of devastation? The exclamation that Blucher was reported to have made, while walking through London, looking into the wealthy silversmiths' shops, would be heard, mayhap, on the Boulevard des Italiens:—"Mein Gott! what a city to sack!"

Added to the danger that always exists from the recurrence of a war and its continuance to the injury and destruction of art and monuments, there is this second evil: War has ever the baneful effect of weaning or scaring students and workmen from their legitimate and honourable pursuits. And the patron and the employer are, if not affected in the same manner, sure to be affected otherwise by a depression in business; so what acts upon one reacts upon another member of society, and thus through endless variations of the body politic.

War is, as we have plainly stated, a calamity, in whatever manner we view it, and it should never be resorted to until every other means were exhausted to effect a reconciliation. National honour is, no doubt, a proud boast, and the preservation of this honour is worthy of some sacrifice; but kings nor emperors, no more than journalists, should be dictators of national or public opinion: they may dare to speak, but still ever hold themselves amenable to the public will.

If this course were always pursued, and this same view taken of public questions, by public men who hold sway, and have a voice in the affairs of the nation of which they are subjects, they would be supported by a mutual reciprocity of common interest, on the part of the people, that would end in peace.

An era of peace is always an era of improvement: not a slavish peace, an inert quietude, but a state of wholesome, manly watchfulness, bespeaking a conscious rectitude in our ultimate resolves. Under such a state of feeling, material progress must be made. Civilisation must exist, and no fear need be entertained that the brain and brow sweat of several generations has fallen in vain, and that the barbarism of man will destroy in a week the art-treasures and architectural triumphs of centuries. C. C.

THE SCIENCE SCHOOLS.

The following represents several letters that have reached us:—

Sir,—On a former occasion you kindly permitted me to express my feelings as to the probable result of the late minute on the students of Science Schools in connexion with the Government Department of Science and Art, and I then ventured to predict that its effects would be most disastrous to both teachers and students, by removing incentive to effort in the one, and creating a consequent indifference and lassitude in the other. I should have been very happy to have learnt that my prediction was unfulfilled, but recent questions asked in the House of Commons, and growlings loud and deep from both teachers and students, since the publication of the results of the examinations, compel belief in its truth. What then are the results? By cutting off altogether the third or lowest grade, the examination has been rendered much more difficult, and, as a consequence, a very large number, perhaps the largest number, as being the least informed, have failed to pass, and the teachers for them get no pay at all. Then, again, for the rest, we are convinced that in setting the questions the same spirit is manifested; indeed, it is apparent, that one has only to compare them with the same stage of the previous year, to see at once that they are very much more difficult.

This has caused very many, perhaps the great majority, to be ranked in the second class, in all the stages, a position which confers no prize, but only a certificate: a cheap substitute, say they, and unworthy of a liberal government. Then as to the future. Unless there can be confidence placed in the stability of the arrangements made, we shall lose our best teachers. Already, in the school to which I belong, the most able teacher, a clever university scholar, has given in his resignation, and with him will go a considerable number of students dissatisfied. Then I should much like to see a division of the advanced students from those who are just beginning a subject. At present a teacher at the beginning of a session begins at the beginning, or most elementary part of his subject, and the advanced student, who knows it all, is obliged by the rules to sit out the lectures. It is felt that much time is thus lost. Much complaint has been made also at the Practical Geometry and Drawing Classes examinations, which really seems well grounded. Having taken one of the highest positions in those classes some years ago, I look upon later examinations with a good deal of interest, but I must candidly confess it appears to me that if, at the present time, one of this year's papers in that subject was placed before me, I should require to know, not *practical* geometry only, but to have a rather high acquaintance with *theoretical* mathematics for a successful solution of it. Then, again, in the building-construction papers, I do most strongly object to the old and happily exploded practice of setting a bad example. You have no doubt, sir, seen, in your younger days, spelling-books for the young, made up of ill-spelt words, which it was expected of the scholar that he should put right. Such spelling-books did infinitely more harm than good, for they familiarized the mind to bad spelling. We have wisely abolished them. But our examiner does not see any objection to taking a leaf out of those books, and giving us bad examples of such matters as bond in brickwork, set higgledy-piggledy, courses of slating set upside down, as though the slater began his work at the ridge of the roof, and worked downwards. Why does he not ask us in a straightforward manner to give examples of bond, slating, &c., to scale, and then judge of our performance. I say straightforward advisedly, for there are, I am sorry to say, a great many questions put to us which are really catch questions, and puzzles. I have one in my mind's eye now: it occurs in the Honours paper in Applied Mechanics, and has reference to hooping guns. That question has been repeatedly asked of men eminent in science by myself and others, and it is really so ambiguous, that they all give it up unsolved. Surely it is wrong at least to ask us to waste our precious three hours of examination, or any part thereof, in endeavouring to solve a mere puzzle.

Permit me, sir, in conclusion, to say again, what I said on a former occasion, that I am sincerely desirous to see the classes to which I am greatly indebted for the scientific knowledge I possess, in a prosperous and flourishing state. I am convinced that that state is not to be attained by parsimony on the part of the Government, or even by the local committees, whom I strongly recommend to be liberal both in terms to the teachers and in the providing of apparatus for illustration.

Science will then be made attractive and pleasant, as well as instructive, and larger numbers will attend, ay, and pay too.

A Student.

WHICH IS THE GROUND STORY OF A HOUSE?

Sir,—On Friday last I summoned a builder to the police court at Hammersmith for corbelling out a chimney at too low a level. Now, his contention was, that the ceiling level with the pavement was the ground-floor ceiling—mine the opposite.

The building in question is an ordinary house, of four stories or floors; one floor several feet below the pavement level; one a few inches above the pavement; and over this are two other floors. There is also a building or addition, two floors high, commencing at the lowest level of the front building, and constructed at the back.

The magistrate has adjourned the summons to Friday, the 26th of August, that evidence may be given by the profession as to which is really the ground-floor or story.

My object in writing this is to ask as many of your readers as will take the matter up, to be kind enough to write me personally on the subject, that his Worship may have the opinion of the professional and building public.

T. E. Knightley, District Surveyor,
Hammersmith.

*** The ground-floor or story is the floor on the road-level, and above the basement story, where there is a basement or sunk story. The "ceiling level with the pavement" is the ceiling of the basement, not of the ground-story. That the framers of the Act used the term in its common acceptation, is conclusively shown by sec. xiv. ("Miscellaneous"), which excepts from certain provisions the doors and windows of "shops on the *ground story* of any building."—Ed.

TYRANNY IN THE WORKSHOP.

Sir,—In the interest of workmen I call upon you to insert the following:—As a mason I started to work in Messrs. Myers & Sons' building yard on Friday 12th, at half-past eight a.m. Soon after, a mason asked me, "What lodge my card was in." I told him no lodge, and that I did not intend to join the society unless justice was given me for the past. I worked on very comfortably from that time until about half-past two p.m., when another mason, whom they call J. C., came and asked me "if I would pay a half-crown on Saturday to the society." I told him no, I should do nothing of the kind. From that time until half-past five I endured continual insults and violence. About four o'clock I was called away to help lift a stone; when I came back to my work, I took hold of my mallet, and found it stuck to my hand. I looked and saw that the handle of my mallet, and other tools, were plastered a quarter of an inch thick with nastiness. I complained of it to them, and told them that respectable men would be above such dirty tricks. About five o'clock, the shop-foreman came to me, and said, "As you cannot come to terms with the men, there will be discension in the shop; therefore go to the office and get your money." I answered, "All right; this is the tyranny of society-men, is it?" Upon which he said it was all right, and it should be so. About a quarter past five, the men got a nail-bag, soaked in water and muck, which made it

several pounds weight, and threw it at me with such force that for a moment I could not get my head upright. After that they threw a dust-ball at me, but did not hit me. J. C. was the leader of abuse; but who messed my tools and threw things at me, I know not. I took it calmly, and went to the office, as directed, for my money, and that closed a trying and persecuting day. And now, Mr. Editor, I blame the foremen for it all, for, without their connivance, such things, could not be done, and there would be no dissension. The foreman that makes his a society-shop does an injustice to his employers, because they have not a free choice of men.

I enclose my name and address.

A Mason.

*** It is to be regretted that "A Mason" did not identify his assailants and take them before a police magistrate.

LAYING THE FOUNDATION-STONE OF BRADFORD TOWNHALL.

The foundation-stone of the Townhall, to be erected for the purposes of the Bradford Corporation, on the piece of ground between Chapel-lane and New Market-street, has been laid by the mayor, in presence of the various official bodies of the town and great numbers of the inhabitants.

The building is intended to provide accommodation for transacting the municipal business of the borough, and will include Police Offices and Bridewell, as also a court-house, and offices for the borough justices, a court-house and offices for quarter sessions, and offices for the board of guardians.

The main object kept in view by the corporation has been to avoid the unnecessary expense incident to establishing and maintaining a large hall for the general use of the public, as that want is abundantly provided for by St. George's Hall. The new building is designed solely with reference to the business requirements of the town.

Messrs. Lockwood & Mawson, of Bradford and London, were selected as architects to carry out their plans, which, it will be remembered, obtained the first prize in a competition with others.

Messrs. Ives & Son, of Shipley, are the contractors for the execution of the works, at the sum of 43,730*l.*, and they are under terms to complete the erection by the 31st day of October, 1872.

The members of the council have for a long time past experienced great inconvenience from not having proper accommodation. The difficulty of fixing on a site has heretofore prevented the building from being erected.

THE ITEM "WASTE."

Sir,—Your correspondent "Opus," in his letter on the above subject, suggests a plan for the better consideration of the utilisation of waste materials, which I am sure is deserving of the best attention of those in authority.

I happen to have placed in my hands at this moment a matter which affords a striking illustration of how often a valuable commodity lies hid in materials, which, denominated waste, are truly so at present. It also happens, too, that the discovery I refer to directly concerns the building community.

J. M. Kay.

A SANITARY DUEL.

A great duel, as it were, between the rival champions of two opposing theories of sanitary science, as applied to the prevention of disease and the preservation of health in large towns, has been fought in the lists prepared before the mayor and the corporation of Liverpool, says the *Albion*. The issue was an important one for Liverpool,—important as fixing the principle upon which the medical officer of health is to continue to discharge his duties; and especially important, therefore, in the obligation thrown upon the Health Committee in battling with disease. Mr. Whitty espoused the cause of Dr. Trench, and logically, as valorously, maintained the wisdom of the past policy of the Health Committee in the conversion of privies into water-closets, and the unwisdom of staying the hand when the town was beginning to obtain a return for its expenditure in a perceptible decrease of its death-rate. Mr. Alderman Dover, on the contrary, supported the report of the Health Committee, the adoption of which would have practically been the relegation of the functions of the medical officer of health to a varying, sometimes an ignorant and perhaps an interested sub-committee, whom it was proposed to invest with power to order the carrying out or the rejection of orders for the conversion of privies condemned by the medical officer as dangerous to the health of the district. Mr. Whitty's complete exposure of the dangers, not to say the absolute impropriety of such a course, appealed with force to the better judgment of the majority of the council, and led to the rejection of the Health Committee's report and recommendation. His opponent has given notice of his intention to resign his position as chairman of the Health Committee.

OVERDONE DECORATION.

St. Cross and St. Paul's.

Sir,—Will you allow me to echo the sentiments expressed by Mr. Donaldson in his letter in a recent number of your journal; also to thank Mr. Sharpe for the pungent and eloquent words in which he has echoed the thoughts of many minds in reference to the (so called) decoration of the church of St. Cross. I visited it with some friends two years since, and we all felt the same indignant astonishment and disgust that such fantastic tricks should have been allowed in that grand old pile.

These things will continue and increase, unless architects emancipate themselves from the influence of that sacerdotal section which, having clothed itself in gorgeous vestments, would bring the fabric of the church into harmony with its own hues. They follow Rome, and Rome delights in tinsel and tawdry finery. I have lately visited Rome and the principal Italian cities, and have groaned over the splendid churches hung with tawdry drapery, not excepting St. Peter's itself, which, on St. Peter's day, also rejoiced in the bronze figure of that much-abused Apostle clothed in full pontificals—doubtless, a matchless specimen of ecclesiastical millinery. Truly there is but a step from the sublime to the ridiculous; but, as I looked up to the grand dome, and then down to this grotesque figure of the first of the Popes, and the rock on which the Romish Church is said to be built, I thought I had never seen the descent more abrupt.

The renovated St. Paul's may exhibit a pure art in alliance with a pure faith. It may afford a grand illustration of the truths of our sublime religion, but it may also sink into a feeble imitation of the Romish "Chambers of Imagery." From this may Heaven, and the common sense and good taste of the artist and laity of England, defend us.

A Protestant Architect.

THE SEWAGE QUESTION.

Opening of the Cheltenham Sewage Farm.—The formal inauguration of the Sewage Farm and works at Hayden, has taken place. The scheme was officially sanctioned after an inquiry before Mr. Rawlinson, C.E. A tract of land, more than 130 acres in extent, at Hayden's Elm, was purchased, and to this site the main sewers from the tanks are extended for the sewage to be utilised thereon; and there is also a large district available for irrigation both between the tanks and the farm, and a little beyond the latter. At its outlet on the land the sewage is discharged at a point about 130 ft. above the level of the sea. The sewer from the Chelt tank to the farm is about three miles in length, having a fall of 8 ft. in a mile; that from Hatherley tank is nearly 1¼ mile long, and has a fall of 6 ft. in a mile. From the land itself there is an outlet sewer for the purified water leading into the Chelt, and a direct outfall also into the Hatherley brook, which abuts immediately upon the land. The estate has been to a certain extent laid out for the reception of the sewage. Hitherto the cost of the work has been more than 6,000*l.*, exclusive of 10,400*l.* paid for the works. The contractors were Messrs. Abell, of Worcester, and Messrs. Gibbs & Canning, of Tamworth.

Contracts for Sewerage Works at Waltham Abbey.—An adjourned special meeting of the Waltham Abbey Local Board of Health has been held for the purpose of receiving tenders for the construction of drains and other works in connexion with the diversion of the sewage from the River Lee. Mr. Sendey, of Enfield Lock, who has been engaged to superintend, and who is the architect and surveyor engaged to carry out the projected works, was in attendance. The tenders, eighteen in number, ranged from 1,378*l.* to 2,050*l.* That of Mr. J. Brown, Croydon, for 1,480*l.*, was accepted. A committee was appointed to confer with Mr. Webster as to a site in the town mead for the necessary tanks, which Mr. Webster had expressed himself willing to sell for 100*l.*

Whitehaven Sewerage.—At a monthly meeting of the trustees of the town and harbour, Mr. Robert Lumb, the district medical officer of health, was requested to send in a report to the trustees once a fortnight upon the state of the public health. It was also resolved that Mr. Hawksley, C.E., be requested to attend to the completion of the sewerage and house drainage of the district; and a committee was appointed, with full power to carry out the recommendations of Mr. Hawksley, and all other sanitary arrangements.

The Bristol Drainage and the River.—The foul state of the river at Bristol is exciting attention, and the local *Times* urges the complete drainage of the city, by carrying out the sewage to the opening of the Bristol Channel, at whatever cost:—

"We are spending hundreds of thousands on splendid new streets, or in enlarging old ones (says the *Times*); but a more spacious and commanding city, with a death-rate increasing against us, is but a whited sepulchre upon a large scale,—fair without, and certainly not fair within. Before stately streets and straight thoroughfares, we should look to the sanitary condition of the city. Both economy and philanthropy call for it. Bradford and Reading obtained powers during the last session to improve their sewers and utilise their sewage; and even Dublin, the capital of a country whose people are generally supposed not to be quite so particular in these matters, is bestirring itself to carry its drainage beyond the banks of the Liffey. A large district of Bristol is inhabited by visitors and others, who, free to select their place of abode, have made this picturesque and in many respects most desirable locality their residence: if we are to keep them and attract them, we must not allow the Registrar-General's return to be read against us month after month; especially when, as we believe, a great deal of the death-rate (that part of it certainly by which we exceed other places) may be removed by prompt and thorough attention to the matter of drainage."

FIRE AT A BUILDER'S.

On Tuesday last a fire took place in the premises belonging to Messrs. Hill & Sons, the well-known builders and contractors, No. 10, Charlton-place, High-street, Islington. The flames originated, from some unknown cause, in the steam saw-mills, and rapidly extended to the stabling, burning three horses to death; from thence to the engine and boiler houses and workshops; and in the yard about 1,000 cut deals were consumed. Engines were early on the spot. There was plenty of water, but the flames could not be conquered until the whole of the buildings belonging to Messrs. Hill were destroyed, as well as others adjoining. We are asked to add, and do so willingly, that immediate arrangements have been made so that the disaster will not interfere with the Messrs. Hill's business, which will be proceeded with as usual, at other yards belonging to them.

RESTORATION: ST. JAMES'S, BURY ST. EDMUNDS.

Sir,—Your correspondent, "A Looker On," in developing his theory of restoration, has cited as an example to be avoided the church of St. James, Bury St. Edmunds. I venture to hope that the editorial note, by which you limit the responsibility of his remarks to your correspondent himself, may be taken as applying to his statement thereon. I demur to the assertion that the church in question is mostly bad in detail. Considering the date, about 1450, I think it a fair example of the style, with the exception of the window-tracery, which is poor. The arcades of the nave, in particular, not only merit the exception which your correspondent makes in their favour, but may well bear comparison with those of the sister church of St. Mary, built about the same time, or rather earlier, the mouldings of which are of that *molten* character which marks bad work, and is not to be seen in the mouldings of St. James's. Your correspondent objects to the high-pitched roof, which he thinks exceedingly heavy. Here, again, I shall have to disagree with him. It will be the opinion of most persons that a high roof is in itself lighter in appearance than one of low pitch; and there is nothing in that of the church in question to make it an exception. The absurdity which the "Looker On" finds in the contrast with the four-centred west window must rest with the

window, and not with the roof. The nave of the church, as is well known, was in course of construction from about 1450 to 1550, or later; and the time which elapsed before the western bay was completed quite accounts for the incongruity of the window. It would be hard that the restorers of a large church should be called upon to erect a roof to suit a late window at the west end. The roof is quite in keeping with the nave, and has the authority of the example of St. Stephen's Church, Norwich, where, rather singularly, a similar four-centred west window occurs. Your correspondent's dictum as to rebuilding in the style of the bulk of the work any parts of a church which it may be necessary to reconstruct must, I think, be taken with some decided limitations. A bad style may be tolerated in an old building, but can never be a fitting subject of reproduction in new work. This matter, however, I leave to abler pens than mine to discuss and maintain.

B. B.

PRESTON MARKET.

With reference to the accident at the new covered market, in course of construction in this town, I may mention that the erection consists of a double row of cast-iron columns, supported a roof of iron, slate, and glass, having a span of about 90 ft. and a length of about 340 ft. The roof principals were being placed in position, about thirty of them having been fixed, when, at a moment's warning, the whole roof gave way, and came down with a terrific crash, bringing with it longitudinal girders, columns, brackets, and all in one commingled heap of ruins. The cause of the fall is generally said to be the want of sufficient lateral tie and support during the erection to secure the principals as they were fixed,—an instructive caution to roof builders to make good their work as it proceeds.

J. B.

VERMIN IN NEW HOUSES.

A correspondent, "R. W.," writes,—"I am unfortunate enough to have a house in a terrace newly built, and the partitions are swarming with a horrid insect I can call nothing but a bug; yet it is very much larger and longer than what the ordinary one is. Every house in the terrace is the same. I have stripped the walls and distempered them, but they come from the skirtings and up the floor-boards. I have put the legs of the bedstead in tin cups of water: still the insects get up the walls to the ceiling, and drop on me. Can any of your people advise me what to do, for I am in despair. I think they must be in the wood."

HALIFAX BUILDING SOCIETY'S COMPETITION.

Sir,—The particulars of this competition were advertised in your journal *last year*, the building to cost only 5,000*l*.

The drawings have been sent in nearly seven months! No notice has yet been sent to the competitors that anything has been done.

A poet has written something about learning "to labour and to wait." Alas! the common lot of architects; but surely it is time the Halifax Building Society's directors were up and doing.

In any case, the competitors will do well to have their "hearts prepared for any fate."

A Victim.

QUESTION OF BUILDERS PAYING COMMISSION.

Haddon *v.* Morton & Co.

In this case, tried at the Westminster County Court (before Mr. F. Bayley, Judge), an action was brought by the plaintiff, Mr. John Cooke Haddon, Civil Engineer, Bessborough Gardens, Pimlico, against defendants, Messrs. Francis Morton & Co., extensive builders and contractors (limited), Kennington, to recover the sum of 22*l*. odd, commission on work obtained by them, through him, on which it had been agreed he was to be paid 2½ per cent. The liability was denied.

Plaintiff stated that in the early part of July, 1866, he was spoken to by an architect named Davis, who is also a captain in the 19th Surrey Rifle Volunteers, as to his knowledge of a builder who could erect a military shed for the corps on their ground off the Kennington-road, when he mentioned the names of the defendants, to whom he introduced the Colonel (Brown), and heard an arrangement entered into that the work required to be done should be completed for 75*l*. He waited till the shed was finished, when, on applying for payment of the commission due to him, it was refused, and he was told that it was not through him the work had been done, as his contract, not being acted upon, had fallen through, and a fresh one made for 90*l*. at the intervention of Captain Davis. He therefore now, with the thorough knowledge that he was the first that mentioned the names of defendants, who were consequently ultimately employed to build and fix the shed, took these proceedings.

Captain Davis corroborated plaintiff as to his mentioning defendants, whom he himself likewise knew, but denied that any arrangement was made by them to do the work for the sum first named, although it was named. Witness subsequently suggested alterations and improvements; and, consenting to do so for the amount of 90*l*., their contract was accepted and the work done.

The Judge observed that plaintiff's claim had failed in being established, as the terms on his introduction were not entertained, although, as it appeared, mentioned, and his decision must therefore be against him.

Judgment for defendants.

SMOKE PREVENTION.

In the Police-court, Clerkenwell, Felix William Spiers, of the firm of Spiers & Pond, the well-known restaurant-keepers at the different railway stations, appeared before Mr. Barker to answer a summons, taken out by order of the Commissioners of Police, for unlawfully using a furnace at the refreshment stores, King's-cross Station, on the Metropolitan Railway, not constructed so as to consume its own smoke.

Evidence was given that on the 28th of May dense volumes of black smoke issued for some time from a chimney belonging to the defendant, and again on July 21, and on August 6th.

Mr. William Sanderson, civil engineer to the Government, said that the manager of Messrs. Spiers & Pond was cautioned. On the 18th of June he inspected the premises, and found a furnace and two ovens with a low chimney not constructed so as to consume its own smoke. Nothing had been done to the furnaces, although he had told the defendant's manager where to go in the West-end to see large furnaces, which were fixed, and consumed their own smoke.

The defendant, in answer to the charge, said he had been very busy at Wimbledon, and the engineer had not had any time to to attend to the furnace till last week.

Mr. Barker said it was one of the worst cases that he had had brought before him, and he should inflict the full penalty of 5*l*., and 2*s*. costs, which was immediately paid.

Inspector Dunn, G division, applied for costs for Mr. Sanderson making an inspection, but Mr. Barker refused the application.

"MAN THE BOATS."

Sir,—I fear your correspondent's intentions are better than his suggestions, as, with the present appliances, the "box-wheel-of-the-tape" idea would have very little chance of success.

Being an old stager at the business, I will mention one or two things which, I trust, may lead him to a more feasible plan, or an improvement upon the present one.

The old-fashioned appliance of blocks and falls is good enough for the ordinary practice of fine weather and harbour service, giving, as it does, the labour-saving power of combined pulleys for hoisting, and reducing the drag, or more properly "force," in lowering; and, being of the same pattern and principle as the ship's rig, is easily understood and applied, and cheaper than any particularly different appliance can be.

At the hurried time of a man falling overboard (which happens oftener in foul weather than in fair), the falls are very apt to foul, or when the boat takes the water one tackle (*nauticus* "taykel") is liable to get unhooked whilst the other remains fast, either accident causing the liability of capsizing the boat, and smashing her against the ship's side, in both cases endangering the lives of the crew and losing time. I have seen men lost repeatedly through both. The Admiralty had in use a short time since a patent hook for the lower block of the tackle, which, as soon as the weight of the boat was taken off by the water floating her, unhooked itself. The drawback to this consisted in the fact that when a boat was lowered in a hurry one end would surely be some feet below the other, and, being taken by the top of a passing wave, was unhooked and swung right round upon the vessel: result, a complete smash, and a dozen men overboard in addition to the one. It was some years before that was introduced that Mr. Cooper, a lawyer, patented his apparatus for lowering boats in any weather and without stopping the ship's way, which latter is impossible with both the above mentioned appliances.

One man *sitting in the boat* lowers both ends at once true and level, by one rope, the lift of the sea taking the weight off the apparatus, releases the boat from all connexion with the ship, and, falling off with the wash, she drifts under the quarter as safe as a cork. Cooper, however, is obliged to fall back upon the old-fashioned tackle to hoist his boat. Here there is ample room for your correspondent's head-piece. If he can follow the example of the glove-makers, and invent the other half of the machinery, which, combined with Cooper's, shall make both *lowering* and *hoisting* safe and easy, he may make his name immortal—and possibly die of starvation.

I never knew of Cooper's apparatus being used in the Royal Navy but once—viz., when the late Captain William Peel left England in the *Shannon* only to fall in the Indian rebellion. I am not sure now whether he had the ship's boats fitted with it at his own expense, or whether the Admiralty did it at his request, but he was the cause of it, and it was the means of saving more than one life before the ship arrived at Madeira. The *Admiralty Pattern-hook* was introduced in 1860.

I have trespassed upon your space, for I feel warmly upon the subject, having run the risk.

F. T. Mullett.

RAILWAY BRIDGES AT LUDGATE-HILL.

Whatever may have been the reasons assigned for permitting the London, Chatham, and Dover railway to be constructed as it is to the great disfigurement of the City, it is not necessary that it should continue so. The alterations now being made at the lower end of Ludgate-hill, make this a fitting opportunity for removing the bridge over that way altogether, as well as the series of arches attached to it on either side.

The bridge over Queen Victoria-street in continuation, should also be entirely removed, and instead thereof an inclined road be made from the end of the bridge, crossing the river until it reaches Queen Victoria-street, where it should enter a tunnel made under the road, which would have to be raised about 6 ft., or not quite half the height of the bridge over it. The present roadway being nearly 5 ft. below the level of the road on Blackfriars Bridge, at the end of the last arch of it, therefore from 1 ft. to 2 ft. is all that would be required to give one uniform level to all the adjoining land from Blackfriars Bridge to Queen Victoria-street, near St. Andrew's-hill, on the east, or the street facing the Apothecaries' Hall on the north, where the land is even higher than I have stated it to be. The tunnel thus to be entered in Queen Victoria-street would be continued northward, passing under Ludgate-hill, the same to be raised 3 ft. or 4 ft., or to the level of the road, where the houses are now being pulled down for improvements, and which makes the present a most fitting opportunity for the alterations proposed, the tunnel to be continued northward by way of Holborn Viaduct, and thus the western portion of the City would be once more cleared from the eyesore of a bridge over Ludgate-hill and Queen Victoria-street. Should any desponding shareholder in the London, Chatham, and Dover Railway Company wish to know how the proposed alteration will affect his interests, he might easily obtain an estimate of the expense of converting the thirty-five or more arches into one continuous tunnel, under a street of the same width, and which would give about 10,000 ft. frontage, which might be let on building leases, at its then value of from two to three guineas per foot, thus producing from 30,000*l*. to 40,000*l*. a year, instead of nothing as at present. The whole of this may be accomplished without stopping the traffic a single day. The above alteration might be effected by the joint expenses of the City and the railway company, both of whom would receive the benefits arising therefrom; or if only carried from the Viaduct to the station in Bridge-street, the expense would not be very considerable, and the Ludgate-hill Bridge (the eyesore facing St. Paul's), would be removed. A tunnel of a few yards from the above station to the district railway at Blackfriars, would complete a junction of all railways in the heart of the City.

Wm. Palmer.

ACCIDENTS.

Fatal Fall from a Building.—An inquest has been held on the body of a slater in Salford, who met his death through injuries he received in a fall from a building. The deceased was engaged in reslating the roof of an old building in Dow-street, Chorlton-on-Medlock, when some bricks upon which he was standing gave way, and he was precipitated to the ground. He was taken to the infirmary, where he died. The jury returned a verdict of accidental death.

Two Men smothered at Luddenden Foot.—Two men, employed by Messrs. Whitworth & Co., of Ludddenden Foot, near Halifax, were smothered whilst they were effecting some repairs to the large pipe which connects the gasometer with the chief meter. They were found about six o'clock by a man who works the night "shift." Scaffolding had to be erected to do the work, and both men were on the scaffolding when they were found.

Fall from a Scaffold.—A man who lives at Attercliffe was working at Grimesthorpe, when the scaffolding upon which he was standing gave way, and he fell with it to the ground, a distance of about eight yards. Several of his ribs were broken. He was removed to the infirmary.

Fatal Accident from Defective House-planning. Mr. Bedford has held an inquest at the St. Anne's Vestry, Dean-street, Soho, on the body of Mary Pond, aged sixty-two, of 15, Chapel-place, Soho, who died from a fall down-stairs. The evidence showed that the room in which she and her husband lived was situate in such close proximity to the stairs, that one stepped from the room down the first stair, there being, in fact, no landing. The deceased, who was blind, had groped her way across the room, with the intention of sitting down in an arm-chair, but, unfortunately, turned her back to the door (which was wide open), and fell backwards to the bottom of the flight of stairs, striking her head in a fearful manner, and inflicting severe injuries, from the effect of which she died. The jury strongly condemned the designer and builder of such a house, and returned a verdict of "Accidental death."

RAILWAY MATTERS.

New Eastern Station.—At the Secondaries' Court, before Mr. Potter and a special jury, a compensation case, "White and another *v.* The Great Eastern Railway Company," was recently heard. The claim was in respect of premises in Liverpool-street, City, required for widening the street near the new station to be erected. By an arrangement the jury awarded 1,450*l*. At the same court, on the preceding day, on a claim by a Mr. Bush, against the same company, for adjoining premises, for the approaches to the new station, a special jury, after a long investigation, gave a verdict for 6,000*l*.

North London.—From the report of the directors just issued in anticipation of the meeting on the 18th inst., it appears that the receipts of the last half-year were 168,992*l*., against 172,445*l*. in the corresponding period of 1869,

showing a decrease of 3,453*l*. The decrease in the receipt from passengers—viz., 4,010*l*., is chiefly attributable to the diversion of traffic consequent on the establishment of through train services now worked by the Midland and Great Northern Companies to the City, which form competitive routes with this company's line from Camden, Highbury, and other points. The merchandise receipt is decreased by the diversion of the Midland Company's goods traffic, and by the reduced scale of toll on the London and North-Western Company's traffic to Broad-street. These losses have been partly met by an increase in the tonnage conveyed. The net balance available for dividend being 81,399*l*., the dividend recommended by the board, at the rate of 6½ per cent. per annum, on the ordinary stock, will leave a balance of 4,874*l*. to be carried forward to the current half-year. The widening of the line between Camden and Dalston is being pushed forward, and will, it is anticipated, be completed, with the exception of Highbury station, in the course of the present year, as well as the new stations, in course of construction by the London and North-Western Company, at Chalk Farm, and by this company at Hackney.

The Fairlie Locomotive.—A new locomotive on Captain Fairlie's plan having been recently completed for exportation to the opposite side of the Atlantic, a number of engineers, and other gentlemen interested in railway matters, met at the Hatcham Ironworks to witness trials of the powers of the engine, especially in travelling round sharp curves. In a yard attached to the works rails had been laid down, the curves of which were in some parts not more than 50 ft. radius, and here the engine was taken round and round at moderate speed. The engine is double, and constructed so as to employ the largest possible amount of power, while possessing a minimum of dead weight. The boiler of the two engines is in the centre, and the frame on which they are placed is so constructed as to admit of its binding, as it were, on a hinge under the double engine and boiler in going round a curve. This arrangement, it seems, worked with great smoothness, and in consequence not the slightest jar or extra pressure against the rails was perceptible to those on the engine, when no motion could be noticed but that of smoothly gliding along the line. From the plan of making the engine double, no turn-table is needful, as either end can be placed in front. Captain Fairlie asserts that the adoption of his system would on many lines of the kingdom diminish the working expenses by as much as 50 per cent.

CHURCH-BUILDING NEWS.

Lewisham.—The Church of St. Mark, at Lewisham, was consecrated on July 20th by the Bishop of Rochester. A sermon was preached by the Bishop of Victoria on the occasion. A notice of the building appeared in our columns in announcing the laying of the foundation-stone, in May, of last year. The building has been erected by Messrs. Carter & Sons, from the designs and under the supervision of Mr. William C. Banks. The carving has been executed throughout by Messrs. McCarthy & Smith. The pulpit is the gift of a lady, and the font the gift of the architect. The cost of the works to the present time, leaving out the upper part of the tower and spire and the boundary-walls, is about 7,100*l*., the original contract being 7,050*l*. An organ, by Willis, of Camden-town, has been erected, at a cost of 550*l*. The lighting and ironwork were done by Messrs. Richardson, Slade, & Co., and the tile paving is by Messrs. Hawes. The heating of the church, by hot water, has been carried out by Mr. Ambrose Marriott, of Higham Ferrers, with his patent boiler apparatus.

Newton, near Pickering.—A new church has been consecrated at Newton-upon-Rawcliffe, between four and five miles distant from Pickering. Mr. Wyndham Tarn, of London, architect, prepared the plans and drawings; and Mr. Watson, of Scarborough, was the sole contractor. The church is in the Early English style. Its internal length is 70 ft., whilst the breadth is 24 ft., and it affords accommodation for nearly 150. The walls are plain, and built of stone procured in the immediate neighbourhood. There is a bell-turret at the west end. The east end of the church is provided with three lancet windows, and the west end with two windows of the same description. The side walls are pierced with lancet lights. All the windows are glazed with cathedral glass. The roof, which is high-pitched and open-timbered, rests upon plain stone corbels, and the height from the floor to the apex of the roof is nearly 40 ft. The porch is situate a few feet from the western extremity of the south wall, and the vestry is on the north side of the chancel. The flooring is paved with coloured tiles, and within the sanctuary the tiles of the floor are of different design, the colours being buff and black. The sittings are of deal and open, and they are fitted up with book-shelves, and stained and varnished to correspond with the timbers of the roof. The church is provided with one of Gurney's stoves for warming purposes in the winter season.

Flyingdales (North Riding).—A new church has been consecrated here by the Archbishop of York. It is situate in the Whitby district, adjoining to that of Pickering. The new structure supplants an old one of small size, and the work has been accomplished chiefly through the aid of Mr. Robert Barry, of Park Hill, Flyingdales, he having given the site for the edifice and a subscription of 2,000*l*. Mr. G. E. Street, architect, was engaged to carry out the work, and he designed the style of the new structure, the erection of which was undertaken by Mr. Langdale, of Whitby, as sole contractor. The church is constructed of stone from the immediate neighbourhood. The style is Geometric Gothic, with a slight introduction of the German. The church consists of a sacrarium, chancel, nave, and south aisle. Its total interior length is 125 ft., and its breadth across the nave and aisle about 45 ft. The roof is high-pitched and open-timbered, with moulded octagonal tie-beams. The height from the flooring to the centre of the roof is nearly 50 ft. The tower is saddleback, and is in height 120 ft. It has a slanting roof, covered with red Staffordshire tiles, and surmounted with a cross in ornamental metalwork. The porch is towards the west end of the south aisle. It is plain in character, but surmounted with a floriated cross. There is an organ-chapel on the north side, and the sacrarium is apsidal in character, and provided with three windows of two lights each, with trefoil heads and tracery above. The chancel is divided from the organ-chapel and vestry by screens of oak, carved, and the roof is groined in stone. The chancel is approached by two steps, and the sacrarium by three, and the flooring of this part of the church is composed of encaustic tiles of ecclesiastical pattern. The flooring of the nave and aisles is laid down with coloured tiles. The chancel arch is in three orders, and the nave arcade in two, the outer order in each case being included. The windows in the north wall of the nave are of large size, and of two lights each, whilst those in the aisle are of smaller dimensions, and of three lights each. The west window has four lights, with quatrefoil and cinquefoil tracery. The clearstory windows are quatrefoils and two lights alternately. All the windows are filled in with plain glass. The chancel is fitted up with oak stalls and seats for the choir, and the sittings in the nave and aisle are open and of deal stained and varnished. From the roof of the nave are suspended gaseliers of Mediæval design. The cost of the church will be about 6,000*l*. The structure will comfortably seat nearly 450 persons.

Wolverhampton.—The increasing population of Penn necessitating an enlargement of the parish church, a faculty has been obtained for that purpose, and the plans of Messrs. Paley & Austin, architects, are about to be carried out. By these plans, the present brick chancel is to be replaced by a chancel of stone, with a chancel aisle on the south side; and the present nave will be lengthened about 20 ft. It is estimated that these changes will provide for about 150 additional persons. The church is to be heated in winter by a hot-water apparatus. The estimated cost, exclusive of a new organ, is about 3,000*l*.

Halifax.—The new church of St. Mary has been consecrated. The site is about three-quarters of an acre in extent, at the corner of Rhodes-street and Lister-lane, the ground falling rapidly from west to east. The ground plan gives nave with side aisles, north and south chapels, and a deep chancel. The tower and spire, which reach an altitude of 135 ft., are at the north-west end of the church. The style chosen is Geometrical English Decorated. The principal entrance is in the tower, and there is a doorway in a shallow porch in the second bay of the south aisle. Both these doorways are recessed and moulded, the jambs of that in the tower having shafts with foliated capitals. The interior gives a nave 47 ft. to the ridge, and a clearstory pierced with spherical triangular traceried windows. The nave, which is 83 ft. long, and 21 ft. 6 in. wide, is divided from the north and south aisles (which are 13 ft. wide) by arcades of five and six arches. The centre aisle of the nave is 5 ft. wide, and those of the aisles are 3 ft. wide, these latter being placed against the outer walls. All the seats in the nave are open ones, of stained deal. The west window is a four-light one, with head tracery. The windows on each side the nave alternate two-light and three-light. The roofs of the nave and aisles are open-timbered, with moulded ribs and braces, and boarded throughout. The chancel roof is formed of coupled rafters, with curved ribs beneath the boarded ceiling. Advantage is taken of the fall of site to form a vestry under the chancel, adjoining which is a staircase for access to the chancel and robing-room. The chancel, which rises two steps from the nave, opens with a lofty arch, having columns, with sculptured capitals in the jambs. In the north chapel the organ will be placed when it arrives. It will cost about 500*l*., and is being built by Messrs. Hill, of London.

Bedfield (Suffolk).—The chancel of Bedfield Church, near Framlingham, has been re-opened, after having been re-seated and restored. A new roof of stained deal has been erected. The new seating is of oak, with carved stall elbows, and the floor paved with tiles in pattern. The new reredos is of Caen stone, with trefoiled panels and carved spandrels, containing the lily, passion-flower, oak, &c., on each side of the east window; the Lord's Prayer, Decalogue, and Belief being placed in the panels, with emblems above, in gold and colour. Below the east window the panels contain a gilded and floriated cross, in the centre, on a blue diapered ground, with emblems of the Trinity and texts on each side. The lower portion of the reredos is lined with glazed tiles in colours. The altar-rail is of oak, supported on iron scrolled and foliated standards. The builders were Messrs. Vine & Day, of Eye; and the decorators, Messrs. J. & J. King, of Norwich; the whole having been carried out under the superintendence of Mr. James K. Colling, of London.

Meole Brace (near Shrewsbury).—The tower of the parish church has been formally opened. It is 25 ft. 6 in. wide, exclusive of buttresses, and about 100 ft. to the highest point. It is battlemented, and consists of four stages: in the upper stage are hung three bells, by Mears & Co.; the framing of three more being provided. Since the consecration of the church in May, 1869, an alabaster reredos, by Mr. Earp, has been presented. The central subject is the Resurrection of our Lord; on the sides are figures of St. Thomas and St. Mary Magdalene, in niches. The north-east window of the apse has been filled with painted glass: it contains nine panels, representing the Temptation, the Expulsion, the Sacrifice of Cain and Abel, the Finding of Moses, the Burning Bush, the Descent from the Mount, the Infant Samuel prophesying to Eli in the Tabernacle, the Building of the Temple, and the Angel appearing to Zackariah. In the head of the window is a chorus angelorum. The artists were Messrs. Morris & Co., who executed the east window. The total cost of the church has been about 5,500*l*.; and the work has been carried out by Messrs. Bowdler & Darlington, of Shrewsbury, from the design of Mr. E. Haycock, architect.

Hopton Castle.—The opening of St. Mary's Church,—it cannot be said to be a re-opening, inasmuch as the edifice is entirely new, although erected on the site of the old church,—at Hopton Castle, a picturesque village about a mile distant from Hopton Heath, midway between Craven Arms and Knighton, has now taken place. The old church was little better than a barn, and, as there was nothing in it worth preserving, it was resolved some time ago to pull it down, and put in its place a better edifice. It is in the Early Decorated style of architecture, and built of stone from the neighbouring quarries. Accommodation is afforded for nearly 100 persons. Mr. Nicholson, of Hereford, is the architect; and Mr. Gough, of Bishop's Castle, the builder. The estimated cost of the new church was about 900*l*.

West Kirby.—The parish church of West Kirby, near Hoylake (dedicated to St. Bridget), has been re-opened, the edifice having been restored at a cost of nearly 3,000*l*. The church, which is in the Decorated style of architecture, consists of nave, chancel, north and south aisles, and a north chapel. The nave has an open-timbered roof, the trusses being supported on

carved corbels. The chancel, which is arched and panelled, is divided from the north chapel by an arcading of three arches, these and the chancel arch being designed from the old moulded stones found during the excavations. The altar and the chancel are laid with Maw's encaustic tiles. The steps of the altar and chancel are in polished Lancashire marble. The walls and the whole of the roofs are yet not decorated, this part of the work being left until further funds are obtained. The edifice is heated with hot air by Messrs. Whittaker & Constantine, Bolton. The seats, which will be free and unappropriated, are of oak, partly made from the old oak benches. The tower arch has been opened, and the vaulted roof restored. Externally, nothing has been done to the tower, except that a west window has been placed in it. The church, which will seat 350 persons, has been rebuilt with stone from the Heswall Hills. The architects were Messrs. Kelly & Edwards, of Chester; and Mr. John Dobson, builder, of Rock Ferry, was the contractor for the whole work. The expenditure on the edifice has been 2,900*l*. The organ, which has been purchased by a separate fund, cost about 200*l*.

Ryhope (*County Durham*). — St. Peter's Church was consecrated on Wednesday last, by the Lord Bishop of Durham. The whole of the walls are built of magnesian limestone from the beach, with freestone dressings. The columns and arches are in alternate bands of red and white freestone. The roofs are open-timbered throughout, stained and varnished. The plan consists of nave and chancel, 85 ft. long by 24 ft. wide (inside measurement), south aisle, transept, vestry, organ chamber and heating vault, with a large peal tower on the south side (the north aisle and transept being omitted for the present). The church will accommodate 400 adults; inclusive of north aisle and transept, 534 adults. The whole of the sittings are free. The chancel is fitted with stalls, and the east and transept windows are filled with stained glass. The Ecclesiastical Commissioners have given 1,500*l*. towards the erection. Mr. T. C. Ebdy, of Durham, is the architect.

DISSENTING CHURCH BUILDING NEWS.

Wem.—The memorial-stone of a new Baptist Chapel has been laid here. The new chapel will be erected on the site of the old one the additional area required being obtained by enclosing the space formerly occupied by a garden, in rear of the house attached to the chapel. On the plan, the form of the building is that of the letter T, the longest front being towards Market-street, and the transeptal projection, on the site of the garden, being finished with a circular end. Sitting accommodation is provided for about 250 on the ground floor, and additional sitting-room can be obtained by the erection of a gallery at any future time. The basement floor is provided with schoolrooms, baptistery-rooms, and other conveniences. The style of the building is Gothic, of the early decorated period, the principal elevation facing Noble-street. The lower portico of the front consists of a porch surmounted with two ornamental gables, above which rises the main gable of the chapel which is filled with a Catherine-wheel window, containing ornamental plate tracery. A spirelet, rising to the height of 40 ft., flanks the side of the main gable at the entrance of Noble-street, and will form a prominent object in the neighbourhood. The material with which the building is being erected is local pressed bricks, with dressings of Grinshill stone. The interior of the edifice will be finished with an open timber roof, ceiled under the spars, and is designed to have good acoustic properties. The seats are of framed varnished deal, with ornamental bench ends, and the windows are intended to be filled in with green cathedral glass. The contractors are Mr. T. Francis and Mr. H. Tommy, Wem; and the structure is being erected from the design and under the superintendence of Mr. David Walker, architect, Liverpool and London.

Leek.—The corner stone of a new building, to be used as a Wesleyan Chapel and ragged school, in Mill-street, Leek, has been laid. The building will be of plain Early English character, in red brick, with stone dressings, two stories in height, the lower story for school purposes and the upper for the chapel, in which 400 persons can be accommodated, the latter with a gallery at one end and class-rooms under. The site inclines rapidly from back to front, and advantage has been taken of this feature to obtain a second entrance for old people, at the rear of the chapel and at the chapel floor level, so avoiding the ascent of the staircase at the principal entrance. The chapel will of necessity be mainly lighted from the roof, which will be open for about two-thirds its height, and a platform will be substituted for the usual pulpit. The whole has been arranged with the utmost economy, the funds at disposal admitting of nothing beyond this. The cost will be 800*l*. at present; but it is intended that this sum shall be considerably exceeded at some future day by a gallery and class-room being provided. Mr. Sugden is the architect, and Messrs. Knowles & Tatton are the contractors.

Framlingham.—The Independent Chapel has been re-opened, after considerable alterations. Erected about forty years ago, it has of late years shown signs of material and gradual settlement in various parts of the building. Recently a committee was formed to take steps to ascertain the cause of these settlements, and to apply a remedy. They consulted Mr. Sugden, architect, Leek, and it was discovered that the walls, instead of being carried down to a sufficient depth to secure a hard unyielding bed (which was found at no great depth below the footings), had been set upon plates of timber, carried all round the building, the entire width of the walls, on a soft subsoil; and these plates were so completely decayed as to be scarcely distinguishable in some instances from the soil on which they were placed. On the advice of the architect, the walls have been entirely underbuilt down to a hard gravel bed. The interior has also been entirely re-arranged and reseated, and other improvements have been effected.

Ryecroft.—The memorial-stone of a new Wesleyan chapel and schools has been laid in Ryecroft, contiguous to the existing chapel and schools, in a line with Victoria-street. The existing chapel will, we believe, be ultimately converted into schools. The walls of the new building have been raised to the extent of several feet. The building, which is intended to take the place of the present chapel, is calculated to seat nearly 900 persons. It is in plan an oblong, measuring internally, without the gallery recess or the towers, 70 ft. by 38 ft., and from floor to ridge of roof the height is 40 ft. It is intended to be fitted with open seats, arranged in three divisions. In the rear of the chapel are two vestries, lavatories, &c., adjoining. The galleries, of which there are three, are approached by two staircases on either side of the principal entrance to the chapel. The chief entrance front is flanked by two towers, which contain the staircases to the galleries. These are carried up and made features in the elevation, being finished with pointed roofs, surmounted by finials. Under one of the towers is a space for the heating apparatus, arched over, and made fireproof. The platform for the pulpit, &c., will be constructed of pitch pine. The building, externally, is constructed of red bricks, with Bath stone dressings. In the centre of the roof is a ventilating turret, which, with the two towers, will form a flooring group, and give a varied sky-line. The contract has been taken by Mr. Clutterbuck, of Gloucester; and the architect is Mr. Maberly, of London and Gloucester. The cost of the chapel will be about 2,000*l*.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Goole.—The Chapel and Schools of St. Thomas of Canterbury, Goole, have been solemnly opened and dedicated. The new buildings are of a simple and unpretending design, of Gothic character, and are built of grey stock bricks, with stone dressings, and bands of black and red bricks sparingly introduced. There are two rooms, each 20 ft. by 50 ft., which will answer the double purpose of school and chapel, till the whole design is completed by the erection of a church, for which a portion of the site has been set apart. The rooms are lofty and well ventilated, and the roofs have the main timbers exposed to view. A house, adjacent to the school, for the residence of the incumbent, is rapidly approaching completion, and promises to group well with the school building. The works are being carried out by Mr. Elliott, of Goole, under the superintendence, and from the plans of Messrs. Hadfield & Son, of Sheffield, architects. Mr. Cairns, of Leeds, is the clerk of works.

Bridlington.—A meeting of the Bridlington Committee of Holy Trinity Church has been held to receive plans and designs for the tower and spire, and also to accept a contract for the same. The tower has four windows with slate louvres and Gothic traced headings; the spire will have four crocketed pinnacles. The contract of Mr. Rennard for 1,400*l*. was accepted, towards which sum the chairman (in addition to his former liberal gifts) offered 1,000*l*.—The foundation-stone of the new church of St. Anne and Convalescent Home has been laid. The church consists of a nave, with one aisle divided by five bays on the south side; two vestries, one for the priests and the other for the choir; apsidal chancel with ambulatory. The work is to be built of moulded bricks, yellow, white, and red in colour, and the architecture is to be in the Early Pointed style. The church will accommodate 550 persons. Chairs will be provided for them, and the fittings of the interior are to be of pitch pine. There will be a considerable quantity of grill work, and it is proposed to ornament the church with paintings on tiles in the same style as the reredos in the present temporary iron church. Mr. Charles Toft Newstead, York, is the architect. The builders have not been appointed.

STAINED GLASS.

St. Mary's, Rufford.—Since the erection of this church (which was opened for public worship in January last) several stained glass windows have been added—seven in number—viz., the east, west, and five in the north and south aisles. These latter are of double lights, or openings, and are adorned with subjects chosen from the New Testament. Commencing with the north aisle, the easternmost window is put up by the Rev. F. Chamberlain, in memory of two of his children, the subject which occupies the whole of the window, except the tracery, being the Adoration of the Infant Jesus by the Wise Men: in a quatrefoil above the light is the Agnus Dei. The second window has the subject of the Good Samaritan, and is the gift of the late Lady Arabella Hesketh. Our Lord calling Nathaniel is illustrated in the third window of the north aisle, this being erected to the memory of Mr. J. Bolton, by his widow. In the south aisle are two. The one near the chancel is presented by the Lady Dowager Hesketh: the subjects are Clothing the Naked and Feeding the Hungry. In the adjoining window the Saviour is represented as the Good Shepherd in one light, in the other as knocking at the door. This is a memorial window to his sister, by the Rev. J. F. Goggin, minister of the church. The east window, which is of three compartments, surmounted with tracery, is enriched with four distinct subjects. In the centre light is the Last Supper, the figure of Our Lord, with St. John leaning upon his bosom, and those of St. Peter and Judas Iscariot; in the right and left compartments are the Annunciation and the Burial, with the Ascension, in the tracery. This window is the gift of Sir Thomas Fermor Hesketh, and is erected to the memory of Sir Thomas Hesketh, baronet. The west window—the largest in the church—was completed last week. This also is the gift of Sir T. F. Hesketh, and is in memory of his wife Lady Arabella, who recently took a lively and practical interest in the rebuilding of the church. Like the east window, it is divided into three compartments, with simple but characteristic tracery. The subject is the Crucifixion, which embraces the whole breadth of the window. In the centre light is our Lord upon the cross, with Mary Magdalene. On the right is St. John supporting the Virgin, and on the left is Joseph of Arimathea and the Centurion. In the upper portions of the lights are angels ministering to the dying Saviour. The tracery is entirely filled with angels bearing upon scrolls the words of our Lord, "And as Moses lifted up the serpent in the wilderness, even so must the Son of Man be lifted up, that whosoever believeth on Him might not perish, but have eternal life." The whole of these windows are from the studio of Messrs. J. A. Forrest & Co., of Liverpool.

Bromsgrove Church.—The best window of this church has just been filled with stained glass by M. Capronnier, of Brussels. The subject is the Ten Virgins. The window is in memory of the wife of the Rev. Walter More-Molyneux, and daughter of the vicar of the parish. This is the sixth painted window that has been placed in Bromsgrove parish church since its restoration in 1858 by Mr. Gilbert Scott. In style and in the treatment of the subject the work resembles Bavarian glass.

Bampton Church.—There have been recently erected in this church, the restoration of which is now almost completed, two memorial windows, one to the memory of Mr. Edward Frederick Whitaker; the other to the memory of the wife of Dr. J. Sherwood Stocker, and their infant son. The former of these, executed by Messrs. O'Connor, is placed at the north side of the west entrance to the church, the subject chosen for illustration being Christ bearing his cross. The latter is situate at the south-east corner of the chancel. The subject is that of Our Lord blessing little children. The picture is carried through the three lights, and the central figure is surrounded by Apostles and others. The whole is arranged under a simple canopy form, surmounted by foliage. This window has been designed and executed by Messrs. Lavers, Barraud, & Westhall, of London.

East Church, Stirling.—Two windows in this church have just been filled with stained glass. The workmanship is by the Messrs. Ballantine & Son, of Edinburgh, from designs submitted to and approved by Sir William Stirling-Maxwell. The largest of these windows, which occupies a central position, measures about 30 ft. by 12 ft., and is divided in three tiers in height, each tier having six lights. The window is a memorial of John Cowane, erected by the trustees of Cowane's Hospital; and the six lower lights contain, as illustrative of that charity, representations of the acts of mercy,—"I was hungry and ye gave me food," "Thirsty and ye gave me drink," "A stranger and ye took me in," "Naked and ye clothed me," "Sick and ye visited me," "In prison and ye came unto me." The middle tier of lights contains representations of our Lord's Sermon on the Mount and the Last Supper. In the central lights of the upper tier are figures of John the Baptist and St. Paul in the attitude of preaching, while in the other lights are the four Evangelists. In the top tracery are angels with scrolls in their hands. The groups are surrounded with foliated ornamentation in harmony with the architecture of the structure. The other apse window, next to and north from the large window just described, is erected by the Glasgow Stirlingshire Charitable Society and the Glasgow Society of the Sons of the Rock, in commemoration of a visit to Stirling in 1868, on the invitation of Provost Rankine and the magistrates. The window measures about 24 ft. by 6 ft., and is divided into two tiers, having three lights in each. As emblematic of the objects of the societies, in one of the under-lights Paul is shown, with Timothy at his feet, dictating to Epaphroditus words (Philippians iv. 8) which express the aim of the Sons of the Rock Society. In the central panel is the Good Samaritan, and in the other sidelight the Marriage of Cana. The three lights in the upper tier represent Christ teaching in the Temple, and in the top tracery are angels adoring the youthful Saviour. The glass, it is said, has all been made in the pot, and is free from enamel colours. The treatment is that of a mosaic.

St. Martin's, Scarborough.—Four new clear-story windows have been inserted in the south side of this church. They are by Messrs. Morris & Co., Queen-square, London, who have supplied all the stained glass in St. Martin's, and, like the clearstory windows on the north side, they represent angels as "ministering spirits." All the windows are the gift to the church of Miss Mary Craven.

Books Received.

South Winfield Manor. Illustrated by Plans, Elevations, Sections, and Details, with Perspective Views and a Descriptive Account. By Edmund B. Ferrey, Architect. Published by the Author. 1870.

Following in the earlier footsteps of his father, Mr. Edmund Ferrey has industriously set himself to work, and measured, drawn, and lithographed all that remains of South Winfield, or Wingfield, Manor House,—which word "House," by the way, should have formed part of the title,—and has published the results in a folio volume of twenty-two plates. Wingfield, as the place is now called, is about three miles from Alfreton, and eight from picturesque Matlock Bath, all in Derbyshire. The manor existed before the time of William the Conqueror. Treasurer Cromwell, in the reign of Henry VI., commenced, it is believed, the present house on the site of a more ancient structure. The Earls of Shrewsbury had it after Lord Cromwell's death, and it was made one of the prison-houses occupied by Mary Queen of Scots in 1569 and 1584. It was taken by the Royalists, and afterwards by the Parliamentarians during the civil wars. In 1666 it came into the hands of Mr. Imanuel Halton, and one of the family, the Rev. Imanuel Halton, is the present possessor.

Large portions of the building have been removed at different times for the sake of the materials.

We wish Mr. Ferrey had had even a better subject. Still, there are a great many useful details, and, in view of the possible restoration of the Manor House hereafter, Mr. Ferrey's monograph will be found valuable. The author himself will have derived no slight advantage from the work he took upon himself and has conscientiously carried through. As the worthy son of an old friend and valued member of the profession, we heartily wish him a successful career.

The Royal Guide to the London Charities, for 1870-71. By Herbert Fry. London: Hardwicke.

This extraordinary list of public charities connected with the metropolis is continually on the increase. It includes no mere parochial charities, and does not even pretend to be a perfect and complete catalogue of the whole range of London benevolence, although it is now so much more complete than heretofore, that the book has had to be enlarged and increased in price from 1s. to 1s. 6d. On a rough calculation of an average of seventeen distinct charities on each of its 206 pages, we find that the total number of these public metropolitan charities must be about 3,500! Mr. Fry has done a good work.

VARIORUM.

"Moxon's Popular Poets" will, we have no doubt, be a popular book. It will be issued in volumes of from 432 to 640 pages, each illustrated with numerous steel and wood engravings, and tastefully bound in cloth, at a low price. Moreover, it will be edited, with explanatory notes and memoirs, by Mr. William Michael Rossetti. Two volumes are already published, "Byron" and "Longfellow," and seem to fulfil the promises.——"The Cruet-stand; or, Sauce Piquante to suit all Tastes" (W. Tegg), is the title of a little book of anecdotes and jokes taken from all sorts of places without saying where. The following "Grammatical Witticism" is suggestive:—"Bobby, what is steam?" "Boiling water." "That's right: compare it." "Positive, *boil*; comparative, *boiler*; superlative *burst*."

Miscellanea.

Three Men Suffocated at Hastings.—No amount of experience is of any use in preventing such "accidents." Surely the circulation of the newspaper press is much smaller throughout the country than it is supposed to be. About ten o'clock on Friday night cries for help were heard proceeding from an A. B. C. tank at the drainage works, at the East Well, Hastings. Mr. Porter, *chemist*, and a man named Harris, employed on the works, immediately volunteered to descend to the help of two men, named Nash and Fry, who were in the tank. On the descent Harris saw Porter fall back, and he himself, feeling exhausted, came up at once to the fresh air. A coast-guardsman then went down, but he had to be brought up in an exhausted state. Some fishermen volunteered help, and, after some search, they found the dead bodies of Fry and Nash. Mr. Porter's body was not found, and it is believed that it has been washed out to sea.

Chairmanship of the Board of Works.—A communication has been sent to the clerk of the Board from the Home Office, containing the following observations:—"Mr. Bruce desires me to mention to you for the information of the Metropolitan Board of Works, that having regard to the probability of legislation at a very early period on the subject of the Government of the Metropolis, he thinks it worthy of careful consideration by the Board whether any appointment that may be made of a successor to Sir John Thwaites should not be upon the understanding that such legislation as I have referred to cannot be long postponed, and that it may involve the abolition by Parliament of the office of chairman of the Metropolitan Board of Works."

Proposed New Poultry Market in Smithfield.—A project for the erection of a new poultry market on the vacant land on the west side of the Metropolitan Meat Market and on the northern and southern sides of the Western Approach-street to the Holborn Viaduct, has been under the consideration of the Markets Improvement Committee of the Corporation for more than twelve months, and it is said that they have resolved to recommend the scheme for the approval of the corporation. In a statement drawn up by Mr. Horace Jones, the City architect, at their request, Mr. Jones laid before the committee, in general terms, the cost and returns of utilising, for the purposes of a poultry market, that portion of land westward of the Meat Market, and on the south side of Charterhouse-street, now in their possession. He states that it might be assumed, in round numbers, that there are about 55,000 ft. superficial of land in that block, with a frontage opposite the Meat Market of 200 ft., and in Charterhouse-street of 270 ft. Of that, 17,000 ft. might be expected to be devoted to gangways and passages, leaving, on the ground floor, 38,000 ft. for shops, which, at the rate of 4s. 4d. per ft. per annum, would produce 8,233*l*. To this might be added 3,150*l*., being the amount at which the basement might be let, and 2,167*l*. for the occupation of the upper floor. The returns in all would amount to 13,550*l*. Against this would have to be placed 5,000*l*. for the annual value of the land, and 6,000*l*. for the interest on the cost of building (100,000*l*.), leaving 2,500*l*. for expenses and outgoings, to which would be added the sum received for tolls. The architect adds that about 4,000*l*. or 5,000*l*., the probable moiety of the cost of forming the road on the west side of the proposed market, might be deducted from the value of the land. The committee have approved of the architect's report, and recommended that they should be authorised to give directions for the preparation of a design, plan, and estimates for the proposed market. The Court of Common Council decide the matter.

Embanking the Thames.—*Nature* reminds us that whatever claims Sir Christopher Wren may possess to be considered the originator of the Thames Embankment, it is hardly fair to leave out of sight those which belong to Sir John Kiviet. The latter gentleman was a refugee from Rotterdam, who came to England in 1666, and possessed some of the ingenuity of his brother-in-law, Admiral Van Tromp. It does not appear how soon after the Fire of London it occurred to Sir John to propose a river embankment, but as early as 2nd December, 1666, we find him examining the soil of the foreshores with a view to discovering whether it was suitable for making clinker-bricks. On the 6th of March following, Evelyn definitely proposed to the Lord Chancellor "Monsieur Kiviet's undertaking to warfe the whole river of Thames or Key, from the Temple to the Tower, as far as the fire destroied, with brick, without piles, both lasting and ornamental." We may presume it was favourably received by Lord Clarendon, as upon the 22nd of the same month Evelyn had audience of the king with reference to building the Quay, and a few days later Sir John Kiviet and the Diarist "went in search for brick-earth in order to a greate undertaking." No further mention is made of the scheme, and we may perhaps conclude that it was abandoned, either on account of the unpopularity of the inventor (whose Dutch extraction would at that time have been a natural bar to success), or of the fall of Clarendon at the ignominious close of the war with Holland.

Sir Isaac Newton's Observatory.—It is proposed to purchase this relic by subscription, and present it to the nation, in the same way that Shakspeare's House was; with this difference, that the latter cost thousands, and can only be seen at Stratford, but Isaac Newton's Observatory can be obtained for 330 guineas, and can be seen in London. A view of its interior, in which Newton spent a great part of his time, and wrote his "Principia," is given in the *Illustrated London News*, of July 24th, 1858, with an account of the Prince Consort visiting it. It was his royal highness who originally suggested that it should be purchased for the nation, but on his decease the matter dropped. An earnest appeal is now made to the public for subscriptions; as, failing that, it will certainly be lost to the nation. Subscriptions received by the Union Bank of London at its four branches will be published.

Watford Parish Church.—At a meeting of the committee for carrying out the restoration of the parish church at Watford, held in the Corn Exchange, under the presidency of the Earl of Essex, the Hon. R. Capel read a report of the sub-committee in reference to the progress of the works. The report stated that on Friday, May the 20th, a portion of the south aisle gave way, mainly in consequence of the insecure state of the foundations, and of the rottenness of the roof timbers. It was the opinion of Mr. Christopher, the architect, that no particular blame attached to the contractors; and although, in a strict interpretation of the contract, they would be liable to make good all damage, he did not think in this case they were legally responsible. Mr. Gibson had engaged that the re-erection of that portion of the south aisle which had given way should not entail upon the fund a greater cost than 40*l.*, he being willing to bear a portion of the expense. It being reported that the south transept was nearly 5 in. out of the perpendicular, it was resolved that it be pulled down and rebuilt, the extra expense being about 15*l.* The amount of the contract is 4,500*l.*, inclusive of 533*l.* for contingencies. This sum does not include the architect's fees, the salary of the clerk of the works, &c., estimated at 500*l.*, nor 234*l.* for covering and levelling a portion of the churchyard. The total amount of subscriptions received or promised is 2,705*l.*

Berlin Waterworks Company.—The half-yearly general meeting of this company has been held at the London Tavern. The thirty-fourth report stated that the net revenue for the past half-year amounted to 31,960*l.* If the receipts for the current half-year were equally good, the earnings for the entire year would exceed 10 per cent. on the share capital. Under these circumstances the directors recommended the payment of an interim dividend for the past six months at the rate of 9½ per cent. per annum. The profits beyond 10 per cent. were to be divided with the Prussian Government for constructing sewers in Berlin. The works in Berlin were to a great extent underground, but the effects of war might interfere with them. The Government had kept faith, but the corporation of Berlin were not friendly to the company. The Berlin people were jealous of the company, and would get rid of it altogether if they could. The report was unanimously adopted, and the dividend as recommended was declared.

Mr. Mason's College.—Mr. Josiah Mason, who, twelve months ago, founded the Erdington Orphanage, at a cost of nearly 250,000*l.*, has now in contemplation another public work of great importance, namely, a college and schools for scientific and technical instruction, open to all classes, and, if the hopes of the founder should be realised, capable of expansion into one of the noblest institutions in the kingdom. As yet the plan is only broadly formed; but as a beginning Mr. Mason has agreed to buy a large block of land in Edmund-street, exactly facing Ratcliffe-place, between the Townhall and the Institute. The purchase money, we believe, is more than 20,000*l.*

Proposed Public Baths for Salisbury. A public meeting has been held in Salisbury for the purpose of considering the desirability of establishing public baths. The mayor presided, but the attendance was not numerous. A resolution affirming the advisability of providing proper bathing accommodation was unanimously carried; and it was stated that Lord Radnor had offered, if a suitable site could be found on his property, to give them a grant of it, with the use of the water at a nominal rent, and also to give an annual grant towards the expense of keeping up the place. A committee was appointed to report on the subject.

Strike of Joiners at Leigh.—The joiners of Leigh are out on strike; at a time, too, when there is much building going on in the town and neighbourhood. At an aggregate meeting of the carpenters and joiners, held on the 18th of June, it was resolved to ask for an advance of 2*s.* per week, which would make their wages 28*s.* The advance was to take place on the first Saturday in August; but as the masters have unanimously declined to accede to the request, the whole of the joiners have struck work.

A Sanatorium Wanted.—The managers of the Consumption Hospital, Brompton, have determined on having a plan prepared for the establishment of a sanatorium, on a site of not more than 10 acres of land, within a radius of 10 miles of the parent building.

Monumental.—It has been resolved to erect a memorial of the late Duke and Duchess of Sutherland in North Staffordshire. The proposed memorial will be a statue of the duke surmounting a fountain, to be erected in Trentham Park. A committee has been appointed.——The statue, which has been erected on Brampton Moat, "by the people of Cumberland, to commemorate the public services and personal worth" of the late Earl of Carlisle, has been unveiled in the presence of a large number of spectators. Mr. T. H. Graham, of Edmond Castle, the chairman of the committee, delivered the inaugural speech.——Shortly after the death of the great Virginian General, Stonewall Jackson, his English admirers formed a committee, of which Mr. Beresford-Hope, M.P., was treasurer. Their object was to erect a bronze statue of General Jackson in some public place in the state of Virginia. Subscriptions flowed in freely, and the work was entrusted to Mr. Foley, R.A. The ill health of the artist delayed the work, but the effigy will be shortly ready for casting. The subscriptions already received will, it is stated, be sufficient to cover all expenses.

Memorial of the late Earl of Carlisle. The Cumberland memorial statue of the late Earl of Carlisle, erected on Brampton Moat, about nine miles from Carlisle, has been unveiled by the Hon. C. W. G. Howard, M.P., in the presence of a large company. The moat at Brampton is a wooded eminence, 150 ft. high, and stands within the barony of Gilsland, where a considerable portion of the possessions of the Howard family lies. The statue, which is on a pedestal of octagonal shape, 8 ft. 3 in. in height, made of fine white stone, is from designs by Mr. Foley, R.A., and is a bronze figure also 8 ft. 3 in. in height. It represents his lordship in a standing position, habited in the robes and insignia of the Order of the Garter, with one hand resting on a book, introduced as suggestive of his taste for literary pursuits. A general holiday was observed in Brampton.

An Anti-fouling Composition.—Two years ago, the engineers to the Commissioners of Northern Lighthouses received a block of wood from the British and Oriental Shipcoating Company, Cramond, near Edinburgh. It was coated entirely with the company's anti-fouling composition, and bolted to another block. Messrs. Stevenson then had these submerged at Wick Harbour Works, and have lately had them taken up and brought south. The log forwarded by the company gives evidence, we learn, of how the coating has defied the ravages of worm in a very remarkable manner; whereas its neighbour, bolted to it, has been almost entirely eaten away and riddled with worm in every direction, leaving only a fractional portion of its former dimensions. The British and Oriental Shipcoating Company have here a proof of the efficacy of their coating in prevention of fouling.

Guisborough.—Improvements have lately been going on in this little rural town. The old townhall has been enlarged and raised, an additional story being added to it. The building consists of a three-storied structure, containing offices on the ground floor, the justice-room and magistrates' clerk's office on the first story, and offices for the board of health, savings bank, highway board, &c., on the third story. The height of the building is now 70 ft. from the ground to the chimneys, and the front towards the street is faced by a gable, the top of which is surmounted by a stone ornament. There are now being erected 100 cottages in the town, for the accommodation of workpeople employed in the mines, the accommodation afforded by the town being insufficient.

Hole and Corner Tenders for a Town Council.—At the last quarterly meeting of the Portsmouth Town Council an altercation took place amongst the members in reference to a list of tenders for a building to be erected on the dock wharf for foreign cattle. The Camber and Dock Committee did not advertise for tenders, but applied to five or six of the townspeople and received the following:—Mr. Lawrence, 820*l.*; Mr. Roberts, 900*l.*; Messrs. Neave & Fry, 729*l.*; Mr. Light, 879*l.*; Messrs. Bramble, 742*l.* 16*s.*; Mr. Bevis, 891*l.*; Mr. Burbidge, 774*l.* 19*s.*; Mr. A. Smith, 700*l.* Two other tradesmen (respectable builders, according to the mayor), hearing of the affair in time, also sent in tenders, one of which was the lowest, but their tenders were rejected, and that of Messrs. Neave & Fry was accepted.

The Carpenters' Company.—Last week the master and wardens of the Worshipful Company of Carpenters were elected in the ancient hall of the company, in London-wall. They chose for master, Mr. W. H. Warton; for senior warden, Mr. W. Robertson; for middle warden, Mr. B. Jacob; and for junior warden, Mr. J. T. Preston. The custom of crowning the new master and wardens still exists in the company, and crowns or garlands used for the purpose have been in their possession nearly three centuries. The cups now in use are less ancient; they are of silver gilt, of handsome design and elaborate workmanship.

Workmen's Appeal for Peace.—The Workman's Peace Committee have issued an address to the working men of Great Britain and Ireland, inviting them to join "in protesting against the war between France and Prussia, as a great and horrible crime on the part of Christian nations at this period of the world's history, and a wanton infliction of misery and ruin, without any adequate cause, or the possibility of any beneficial result." It cannot be too largely circulated.

Gift of a Church.—The church of St. Mary built at a cost of over 8,000*l.*, which has been presented to Halifax by Mr. Michael Stocks, has recently been consecrated by the Bishop of Ripon. The sittings will be free. The building and its fittings are complete, except the organ, which is being built, at a cost of 500*l.*, by Hills, and the upper stages of the tower, which are in course of construction.

Postage of Tracings.—Arrangements have now been completed under which tracings on linen of an architectural or mechanical nature will be allowed to pass to Belgium at the book-rate of postage.

International Exhibition of 1871.—We are glad to hear that there is no foundation for the rumour that the International Exhibition appointed for 1871 is to be postponed by reason of the war.

Egyptian Antiquities.—We are informed that the Hay collection of Egyptian Antiquities will shortly be exhibited to the public in the beautiful Egyptian Court of the Crystal Palace, a very fitting locality.

Wine-Bin Tiles.—The application of tiles to a simple wine-bin, without laths, has been patented by a Mr. Pierce. The plan appears to be both cheap and otherwise advantageous.

Cardiff Exhibition.—The Cardiff Fine Art and Industrial Exhibition was opened on Tuesday last by the Marquis of Bute.

TENDERS.

For repairs, painting, and decoration, St. Mary's Church, Somers-town. Mr. James K. Colling, honorary architect:—

Nash	£596 0 0
Eyers	442 12 8
Mann (accepted)	389 0 0
Henderson (too late)	384 10 0

For erection of farm-house, near Tewkesbury. Mr. James Allsop, architect, Worcester:—

Collins & Cullis	£735 0 0
Espley	725 0 0
Mills	701 0 0
Mathews	645 0 0

For alterations and additions, Rose Lawn House, Worcester. Mr. James Allsop, architect, Worcester:—

A.

Beard	£499 0 0
Heming & Son	486 5 0
Hughes	479 0 0

B.

Beard	£514 0 0
Heming & Son	496 0 0
Hughes	494 0 0

For erection of seventy-two cottages and six shops, and for forming streets, for the Cardiff Workmen's Cottage Company, Limited. Mr. T. Waring, Cardiff, architect:—

	Cottages.	Shops.	Street Works.
Dawson	£9,331 7 0	£2,033 15 0	£349 2 0
Day	9,122 0 0	1,854 0 0	319 0 0
Shepton*	8,588 0 0	1,920 0 0	378 0 0

* Accepted.

For the extension of the Orangery at the Crystal Palace. Mr. Charles H. Driver, architect. Quantities supplied by Mr. T. Nixon:—

Jackson & Shaw (accepted)	£3,200 0 0

For Parsonage-house at St. Saviour's Church, Brixton. Mr. J. Bartlett, architect:—

Wood	£1,843 0 0
Ashby & Sons	1,699 0 0
Conder	1,690 0 0
Pritchard	1,687 0 0
Downs	1,679 0 0
Colls & Sons (accepted)	1,667 0 0

For two shops and nine cottages, at Chislehurst, Kent Messrs. Habershon & Pite, architects :—

Thomas	£2,665	0	0
Glover	1,987	0	0
Wevill	1,980	0	0
Perril	1,980	0	0
Lane	1,970	0	0
Shool	1,963	0	0
Basham	1,961	0	0
Waterson	1,960	0	0
Richards	1,945	0	0
Lacy	1,920	0	0
Gerrard	1,920	0	0
Haseman	1,900	0	0
Tongue	1,890	0	0
Elliott	1,859	0	0
Nightingale	1,843	0	0
Bennett	1,824	0	0
Bolland	1,815	0	0
Hugh	1,775	0	0
George	1,767	0	0
Peck	1,760	0	0
Niblet	1,750	0	0
Hume	1,700	0	0
Woodcock	1,682	0	0
Ware	1,655	0	0
Moore	1,599	0	0
Bowles	1,598	0	0
Whiting	1,591	0	0

For the erection of a villa residence, conservatory, and stabling, at North Parade, Horsham, for Mr. A. Agate. Mr. Edward Burston, architect :—

Sturdy	£5,127	0	0
Putney	4,530	0	0
Terry	4,453	17	6
Bushby	4,349	0	0
Shearburn	4,169	0	0
Perigoe	4,133	18	6
Burbidge	4,043	0	0
Chappell	3,894	0	0
Nightingale	3,812	0	0
Peskett & Taylor	3,555	0	0
Potter	3,471	5	0
Sharp, Brothers	3,446	0	0
Smith	3,284	9	0
Greenfield & Sons	3,239	10	0

For the Devonshire-square Church and residence. Mr. Thomas Chatfeild Clarke, architect :—

Ennor	£8,128	0	0
Myers & Sons	8,084	0	0
Perry	8,023	0	0
Macey	8,022	0	0
Ashby & Homer	7,869	0	0
Hill & Sons	7,825	0	0
Ashby & Sons	7,800	0	0
Axford & Co.	7,780	0	0
Dove, Brothers	7,765	0	0
Henshaw	7,735	0	0
Scrivener & White	7,735	0	0
Conder	7,659	0	0
Hill, Keddell, & Waldram	7,620	0	0
Brass	7,592	0	0
Higgs	7,520	0	0

For the erection of a United Presbyterian Church at Jarrow-upon-Tyne. Mr. Joseph John Fish, architect. Quantities supplied :—

Scott	£4,065	19	1
Crick & Armstrong	3,673	2	3
Millburn	3,668	5	10
McMurtrie	3,605	14	3
Waugh	3,421	3	7
Robson	3,408	5	7
Aisten	3,404	10	0
Kennedy	3,387	6	10
Weatherelđ	3,369	8	0
Turnbull	3,354	0	0
Heppel	3,335	8	1
Whichello	3,329	0	0
N. & R. Reed	3,252	10	0
Morris	3,250	0	0
Wylam (accepted)	3,170	16	6

Toxteth Tabernacle, Park-road, Liverpool. Mr. W. I. Mason, architect. Quantities by Mr. G. Northcroft :—

Hughes	£5,700	0	0
Rome	5,700	0	0
Jones & Co.	5,680	0	0
Urmson	5,587	0	0
Tomkinson	5,550	0	0
Bentham	5,400	0	0
Witter	5,389	0	0
Bridge	5,310	0	0
Nicholson & Ayre	5,277	0	0
Heigh & Co. (accepted)	5,260	0	0

For Erith Public Hall. Mr. Herbert Ford, architect :—

Willis	£1,486	15	0
Building Company	1,403	15	0
J. Blake	1,323	0	0
Harrison & Edwards	1,309	0	0
T. Blake	1,294	1	2
Tongue	1,235	0	0

For erecting villa residence at Laurel Bank, Fulham, for Mr. J. Rooth. Mr. J. T. Newman, architect. Quantities not supplied :—

Blease	£2,400	0	0
Aldouse	2,261	0	0
Wigmore (accepted)	1,861	0	0

For erecting Brookfield Schools, Kentish-town. Mr. J. P. Seddon, architect. Quantities not supplied :—

Williams & Co.	£3,400	0	0
Belham	3,079	0	0
Henshaw	2,979	0	0
Wigmore (accepted)	2,789	0	0
Wheeler	2,272	0	0

For additions to a residence at Little Heath, Potters Bar. Mr. Blashill, architect :—

Gammon	£4,199	0	0
Hill, Keddell, & Waldram	3,276	0	0
Conder	3,200	0	0
Axford & Whillier	3,197	0	0
Patman, Brothers	2,899	0	0
Colls & Sons (accepted)	2,728	0	0

For the erection of a Rectory-house, Clowne, Derbyshire, for the Rev. C. L. Helps. Mr. S. Robinson, architect, Chesterfield :—

Waterhouse & Sons (accepted)	£1,057	0	0

For forming and repairing Hartfield-road, Wimbledon. Mr. W. F. Rowell, C.E., surveyor :—

Palmer	£464	19	9
Marsh	410	0	0
Mildenhall	400	0	0
Simpson	395	0	0
Strickson	379	9	6
Porter	371	1	0
Driver (accepted)	344	19	11

For mortuary chapels, lodge, boundary walls, &c., for the Epsom Burial Board. Mr. W. S. Trehearne, architect. Quantities by Messrs. Wright & Dresser :—

Nightingale	£5,927	0	0
Pollard	5,600	0	0
Spicer	5,084	11	8
Colls & Sons	4,780	0	0

For alterations and additional works at Queen-square Baptist Chapel, Brighton. Mr. John Hill, architect. Quantities supplied :—

Lockyer	£790	0	0
Barnes (accepted)	663	0	0
Chappell	640	0	0

For repairs, &c., offices of Colt's Firearms Company, 14, Pall-mall. Mr. Arthur Cates, architect :—

Cooke & Green	£389	0	0
Pulsford	369	0	0
Sykes (accepted)	294	0	0

For a flour-mill at Caterham Junction, Surrey, for Mr. Henry Walder. Mr. Felix Wm. Lankston, architect :—

Brown	£1,620	0	0
Bull	970	0	0
Sherwood	930	0	0
Pollard	915	0	0
Lose	864	0	0
Parson & Tilling	834	0	0
Paskett & Taylor	784	0	0

For the erection of a house in Highbury New Park, for Mr. S. Rivett. Messrs. Lynes & Rivett, architects :—

Ellis	£2,190	0	0
Bishop	1,987	0	0
Hardy	1,869	0	0
Killby	1,840	0	0

For St. Paul's Church, Thornton-heath. Messrs. McMurdie & Wagstaffe, architects :—

Downes	£6,165	0	0
Myers	5,997	0	0
Jackson & Shaw	5,665	0	0
Newman & Mann	5,385	0	0
Dove, Brothers	5,355	0	0
Nixon & Son	5,290	0	0
Mortar	5,023	0	0

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We are compelled to decline pointing out books and giving addresses.

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W. DAVISON, Secretary.

Port and Harbour Office, Hartlepool, August 9th, 1870.

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Builder.

XXVIII.—No. 1438.

ervation and Purity of Iron.

BUT few subjects connected with the craft of the builder, the work of the mechanical engineer, or the labour of any workman who is concerned in the manufacture or the preservation of ironwork, have more importance than the question, "What is rust?"

"Why, every one knows what rust is," many a reader may reply. "It is impossible to read any work touching on the subject, without becoming aware that rust and oxide of iron are used as equivalent terms."

Such, no doubt, is the general view; but the use of language, however general, is by no means a proof of the accuracy of the statement (the truth of which is taken for granted), that the ctive action which we call rusting is nothing else than the oxidation of iron by exposure to damp and to the atmospheric air; or, in other words, that rust is the oxide of iron.

It is obvious at a glance that this is not a mere curious question of speculative chemistry. It is not a pedantic quarrel about words. Rust, whatever may be the etymological affinity of the word written in Latin, *rubigo*, is good, plain, vernacular English. We all know what the word means, to a certain extent; and we all of us have more or less suffered from the liability of ironwork to be deteriorated by its attack.

But the main importance of knowing what rust actually and chemically is, is not literary. It is eminently practical; for thus alone can we arrive at the answer to the yet more urgently practical question, "How shall we preserve iron from rust?" If we mistake the nature of the evil, we shall not be unlikely to mistake the nature of the remedy.

Before entering into the investigation of any chemical hypothesis on the subject, let us call attention to the result of an experiment made recently by an eminent chemist, with a view to determine the nature of the action which generates rust.

Two pieces of soft iron, of equal dimensions, were filed up smooth and bright. A solution of bicarbonate of soda was placed in a test-tube. A portion of the same bicarbonate was placed in a crucible, and subjected to a heat which rendered it caustic, and a solution of this caustic soda was placed in a second test-tube. One of the pieces of iron was placed in each tube. The first of these, that placed in the ordinary solution, instantly began to rust, and continued to evince the active progress of that destructive process. The latter remained quite bright.

It was left in the solution for about six months, towards the close of which period it began to show symptoms of chemical action, and finally rusted like the companion specimen.

The cause of the behaviour of the iron in each instance is made perfectly intelligible on the theory that the red, destructive rust is not, as ordinarily imagined, an oxide of iron, but a carbonate of the sesqui-oxide ($Fe_2\ O_3\ CO_2$). On this view the presence of carbonic acid is necessary for the production of rust. The bicarbonate solution ($Na.\ O.\ 2\ C.O_2$), was readily decomposed, and set at liberty the carbonic acid and oxygen to attack the iron, which, accordingly, immediately began to rust. But when this equivalent was driven off by heat, the iron placed in the caustic solution was not in a position to attract carbonic acid, and therefore did not rust. Its freedom from destructive action continued until the solution, being left in an unstoppered tube, had attracted enough carbonic acid from the atmosphere to lose its causticity. The moment that enough carbonic acid had been absorbed by the solution for it to *spare* some for the iron, rusting commenced. The experiment is extremely elegant, and it is difficult to resist the inference which is drawn from its results.

The view that the corrosive rust of iron is, like that of copper, a carbonate, accounts very clearly for the destructive action which takes place when iron is set into stone work, or in any way wedged into buildings surrounded by mortar. The chemical change which takes place in the drying and hardening of mortar is, after the first short period of setting, extremely protracted. During the whole of this slow process carbonic acid is at liberty to attack the inclosed iron, and hence arises that thickening sort of rust which, almost as if with the growth of vegetation itself, slowly and irresistibly acts as a destructive wedge.

Iron may, however, be used in the interior of buildings with perfect safety, if it is protected from the access of carbonic acid. A remarkable instance of this occurred, as a piece of practical experience, on the demolition of the Wriothesley-street Bridge, on the London and Birmingham Extension Railway. This bridge was erected in 1835. Like the Hampstead-road and the Park-street bridges, it consisted of brick abutments, pilasters, and piers, supporting cast-iron girders, between which were brick segmental arches, *set in Roman cement*. On the pulling down of this bridge for the extension of the Euston Station, it was found extremely difficult to separate the brickwork from the girders. It was as easy, or more so, to break the bricks themselves. But when the separation was effected, it was found that this unusual adhesion was caused by the entire *absence* of rust. The blue scale remained uninjured on the face of the metal,—red incrustation there was none. This blue scale, no doubt, *is* the oxide of iron, which forms, as in the case of other oxides, a coating of a protective character. The confusion of this harmless oxide with the destructive carbonate is an error of no trivial importance; and its detection bids fair to lead to the reconsideration of the entire subject of the protection of ironwork from rust.

Closely connected with the question of the action of carbonic acid on iron is the investigation of the facts, which at present seem to be so anomalous, observed as to the intimate union of carbon and of iron in cast iron and in steel. Why the elimination of a small proportion of carbon from the metal (or alloy) should be accompanied by such an increase of power of resistance to tensile strain, and why the reintroduction of a yet smaller proportion should be attended by so much more considerable an increase, is a mystery of economic metallurgy which it is of extreme importance to solve. The entire question of the behaviour of steel is one requiring much elucidation.

That steel, under certain conditions, evinces a metallic tenacity, and power of resisting fracture, of the very highest degree, is evident from the effect of impact on steel shell, when fired at armour plate. The action of that sudden and terrible blow, which shatters the case-hardened iron shot, is like that of the blacksmith's hammer on a bar of cold iron, dexterously manipulated on the anvil. We know that iron can thus be hammered till it is hot. The steel shell, in like manner, is heated until it actually explodes its contents. At the same time the head of the projectile is hammered out of shape; but no fracture takes place. The tremendous force of the blow seems to be converted into thermometric, or rather pyrometric, heat; and the steel, thus heated, forges as beneath the steam hammer. The property of steel shell was discovered by accident, a fuse having been picked up on the practice ground when there had been no blind shell fired; but, thus discovered, it has been made use of for the purpose of exactly timing the explosion of the projectile.

On the other hand, we have the fact that a steel armour plate, prepared with the utmost care for the purpose of experiment, tempered in oil and produced with the full expectation that it would evince a power of resistance never previously developed, was fractured, and speedily put *hors de combat*, by the comparatively trifling assault of a 68-pound shot. This difference in the behaviour of steel as hammer and as anvil, as projectile and as armour plate, is, as yet, entirely unexplained.

The interest of these inquiries is not merely philosophical. It is practical in the highest degree. So long as we are aware of the existence of facts, quite unexplained, but in which the most (apparently) inadequate causes produce the most extraordinary results, we are in the position of people who are on the brink of a discovery. How brilliant that discovery may be, we cannot tell. We are on the scent of a treasure trove, but we can only guess at the size of the crock of gold. Mankind has made use of iron for at least four thousand years, for fragments of iron tools have been found in the Great Pyramid, left by the original builders. How long was it before iron was turned into steel? And, even at the present day, while producing iron by millions of tons, and paving our railways with steel, we are discussing the chemical action which produces rust, and we are entirely ignorant of the intimate cause of the differences between iron and steel, so far as regards the effect of the dose of carbon.

It is stated by Sir W. Armstrong that both in the Elswick and the Woolwich guns, whenever failure takes place, it almost invariably originates in the part which is made of steel. The steel tube is the part that cracks first. Steel vent pieces, which were first employed, were fractured with alarming frequency; but since iron ones have been substituted, fractures have been rare. It is argued from these facts that the vibratory action attending concussion is more dangerous to steel than to iron.

The peculiarity of the case consists in the apparently contradictory behaviour of steel when used as a projectile, as a gun, and as a target. It is quite true that, in all manufactures of iron, the two opposite qualities of hardness and of toughness have to be considered. We are not so ignorant of the practical part of this branch of metallurgy as to be unaware of modes of tempering, and of annealing, and generally of producing a metal suitable to the purpose in view. But what we do *not* understand is the law which regulates the existence of these properties. Our knowledge on the subject is almost entirely empirical. The tensile strength of wrought iron is considered to be due in great measure to the removal of the 4 or 5 per cent. of carbon which is contained in cast iron. The formation of laminated fibre by hammering, no doubt, has much to do with the change; but the chemical difference is important. Yet when iron is made into steel, the tensile strength of the latter is increased by the addition of carbon up to the proportion of

some 1¼ per cent. With this very increase of tensile strength, however, contrary to all analogy, we find an increase of brittleness to coincide. For resistance to impact it is considered that steel cannot contain too little carbon. That hardness and brittleness should increase or diminish together is not matter for surprise; but analogy would lead us to expect a different result to accompany the increase of tensile strength.

There is no doubt whatever that the great foe to the excellence of iron is impurity, especially the presence of sulphur. Our enormous production, and the commercial rivalry which has proved so strong a temptation to the manufacturer to study cheap modes of production, irrespective of their influence or quality, has deteriorated our iron to a lamentable extent. English axes are said to be useless in the forests of America, or against the iron-barked trees of Australia. The difficulty of producing, from the present wrought iron of commerce, anything approaching the excellence of the old English forged work, has been illustrated, within the past few months, by the high praise given, by very competent judges, to some specimens of smiths' work to which prizes were awarded by the Society of Arts the other day. If these prize specimens be compared, not only with the Hampton Court gates, forged in 1695 by Huntingdon Shaw, and preserved at South Kensington, but with such samples of neglected and unknown old English work as may now be seen in the course of rapid decay before an old house in the main street of Rochester, we cannot fail to deplore a sad decadence in the art; the fault, no doubt, as well of the iron-master as of the smith.

It would probably be impossible for any English smith now to produce such work as some of the later specimens of articulated armour in the Tower of London. On the other hand, where, for special purposes, special attention has been given to the manufacture of the iron, the result is satisfactory. We question whether either Toledo rapiers or Damascus sabres would stand uninjured, taking them one with another, the rude tests to which Mr. Wilkinson, of Pall-mall, subjects his best swords. It is true, that of these carefully-made blades, we have seen three out of four damaged in the test. But the one which passes is a weapon to which a man may safely trust. If any corslet now worn in European warfare resists its thrust, it is the fault, not of the blade, but of the arm that wields it. In preparing iron for special purposes, the chemical character of the water used in the factory appears to be very important. It was an old bye-word in the steel trade that a good sword could not be made at Sheffield, nor a good knife at Birmingham, the sword being the boast of the latter town, and the knife of the former.

The practical upshot of these considerations ought to be, the concentration on the subject of the chemical properties of iron and carbon in combination of the same kind of clear, patient, purposed attention as that which has thrown so much light, within the past few months, on the question of the propagation of disease by germs floating in the air. An immense amount of empiric inquiry is going on upon the subject. Great practical results have been attained. We need not particularise any of those processes as to which no small amount of controversy has recently raged. We are not undervaluing the labours of such men as Whitworth, Brown, Siemens, or others. Still, while the action of carbon in its relation to iron is so apparently capricious and contradictory, and while the destructive effect of carbonic acid, and the actual nature of corrosive rust, have been hitherto, almost entirely, unsuspected, we cannot doubt that a great reward, in fame at least, if not in gold, will attend the success of that scientific investigator who shall unveil the true law of the relation which subsists between the material which forms the hardest and the most precious of gems, and the mineral which, all things considered, may be pronounced the most valuable of metals. The Victoria cross of science awaits the discoverer of the law of the combination of carbon with iron. The fact that the presence of phosphorus produces "shortness" or brittleness in iron when cold, while that of sulphur has the same effect at a red heat, is another of those anomalous and apparently capricious differences which chemistry has detected, but not explained.

Very closely connected with this part of the subject is the extremely important question of the influence of mineral or of vegetable fuel on the reduction of iron ore. So far from this being a mere matter of chemical curiosity, it is one which is most intimately connected with our natural prosperity. It is well known that iron was originally smelted in England by wood, and that, under these circumstances, beds of iron-stone, which are now entirely neglected, in consequence of their distance from the great coal basins, were advantageously worked. In the present state of the country, of course, no fuel can be obtained except coal. In 1866, it is estimated by the Mining Record Office, 9,665,000 tons of iron ore were raised, and 4,530,000 tons of iron were produced, in the United Kingdom. The quantity of coal consumed in the 613 blast furnaces which smelted this total quantity of pig-iron is not stated. The total quantity of coal raised in the year 1866 is set down at upwards of 101,500,000 tons. The iron made in England at present, — or, at least, in 1866, — was very nearly half the total make of the world, which is estimated for the preceding year, 1865, at nine millions and a half of tons. We shall probably be under the mark in setting down 15,000,000 of tons of coals as consumed in our smelting furnaces. The average value of English coal, at the pit's mouth, is taken by the Mining Record Office at 5s. per ton, which would give something like 15s. for fuel for smelting a ton of coal.

In Russia charcoal is still almost exclusively used for smelting; and as to the superior quality of the iron thus produced there is no question. Nor as to the mere element of the cost price of production is the difference so much in favour of the inferior quality of metal as to lead us to entertain any very great confidence as to the permanent position which our iron-masters will occupy in Europe. From recent and very carefully-collected information as to Russian iron works, we find that iron is now produced by the consumption of 110 tons of charcoal to 100 tons of iron made. The lowest price of birch charcoal in Russia is 6s. 6d. per ton. 8s. 2d. per ton is considered a cheap purchase; and 14s. 9d. per ton, and even more, is paid in some establishments. As this variation in price, however, is almost all due to the expense of land-carriage, there can be no doubt that the service of the great iron-works by light railways, which can be laid and relaid year after year to the portions of the forest from which the supply is taken (on the principle of allowing from sixty to eighty years for the regrowth of the timber), will keep down the cost of charcoal for smelting to something below 10s. per ton of iron.

We have not space to exhaust this important subject at present. One thing seems to us to be clear, and that is, that unless the attention of our practical and scientific chemists is turned to the purification of iron smelted by mineral fuel, to the elimination of sulphur and other impurities, and to the elucidation of the complete scientific theory of the relations existing between iron and carbon, the time cannot be far distant when our blast furnaces will be blown out one by one; and when the excellent charcoal iron which Russia can produce in any quantity, and at moderate prices, will replace Scottish, Welsh, and English metal in the market of the world.

THE ARCHITECTURAL EXCURSION IN LINCOLNSHIRE.

"A CITY that is set on a hill cannot be hid," is a sentence that involuntarily suggests itself on first coming in sight, from the railway, of the three towers of Lincoln, which, from their lofty position, dominate the whole country round. The cathedral, in fact, occupies nearly the whole of the level ground on the eminence on which it stands, the ground sloping away from the building, more or less, in every direction, and the principal ascent to it from the south (the railway side of the town), appropriately labelled "Steep-hill," constituting such a climb as might have suggested to John Bunyan, had he ever visited it, the idea of the "Hill of Difficulty" on the road to the "Celestial City." In the projected tour of the Architectural Association, among the Lincoln churches, under the guidance of Mr. E. Sharpe, the cathedral naturally presented itself as the starting-point, and accordingly the excursionists were invited to meet their accomplished guide, in the first instance, at the Lincoln Assembly Rooms, to hear an introductory lecture on the Cathedral, as well as on some of the general points to be noted in connexion with the architectural style and de
buildings to be visited during t
ingly, at two o'clock on Monday
did duly meet there some th
of architectural students and
some "speering" on the part of
the whereabouts of the meeting,
of the good town appearing to b
rant of their own valuable insti
those of the "lower" town knew
cunning of the "upper." Besid
sional audience, there were prese
and at the evening lecture, the Bish
several of the neighbouring clergy
sprinkling of ladies. The main
Sharpe's lecture on this occasion,
garded the history of the cathedr
before delivered in Lincoln, and a
it appeared at the time in our colum
is unnecessary, therefore, to recapi
fice it to say that it was listened to
interest by those present, illustrated
a large geometrical drawing of th
coloured so as to distinguish at a
dates and chronological order of t
portions. It is worth repeating
to those who are aware of the
order and system in carrying on a
Mr. Sharpe has for many years
ployed a regular scale of colour for m
illustrative drawings, the period to
part of a building belongs; this is ba
prismatic spectrum, the colourless
band exhibiting the starting-point b
style could be said to be matured,
progressing in brilliancy through g
yellow, which marks the completely
Early Decorated or (as Mr. Sharpe,
selves, prefers to call it) Geometrical p
then declining through orange (the la
florid Gothic) to the final resumption o
tints. The large number of drawings e
on the occasion (including a very valua
comprehensive chronological progression
mouldings typical of various periods) we
at a glance classified by the spectator, wi
ease than perhaps any other method woul
furnished. One or two special points t
on in the course of the lecture we may
attention to for the benefit of students
were not present. In the Transitional p
from the round to the pointed arch, it was
observed that (in the earlier period of transition,
at least) the pointed arch was always employed
constructively; the round arch decoratively.
This view of the subject, very decisively insisted on by the lecturer as the result of observations of many buildings (Continental as well as English), is another contribution to the theory of the almost purely constructive origin of the pointed arch, already based by other able critics on an examination of the development of groined vaulting, and can alone explain the anomalous style of such a building as Kirkstall, which appears externally as a Norman, internally, in its main features, as a Gothic building. The quasi-classical but *inverted* volute at the angle of the capital was also alluded to as a unique feature of the Transitional period, existing almost simultaneously over the whole area where the style was practised, but for a very limited period only. In adverting to the fine and effective sections of the arch-moulds and vaulting ribs of the cathedral, Mr. Sharpe took occasion to repeat, even more urgently, his protest, recently printed in the *Builder*, against despoiling such mouldings of their natural effect of light and shade by the reckless application of colour; a caution which was received with applause by the professional portion of his audience. In the evening the same audience assembled to hear some remarks by Mr. J. H. Parker, chiefly directed to proving that the Early Pointed work in Lincoln Cathedral was the earliest example of that style in existence, and preceded the similar work at St. Denis, usually ascribed to the Abbé Suger, but which, he contended, had been rebuilt later than the time of that ecclesiastic. The main object was to affix the honour of having invented the pointed style to an English instead of a French builder, in connection with which some question was raised as to Bishop Hugh's architect at Lincoln and his French name (Geoffrey de Noyers), though it appears both possible and probable that the name might have been borne as an English name for two or three generations previously. It would not be to the purpose to recapitulate here the arguments *pro* and *con* as to this subject, more especially as it is evident that an architectural movement

so extensive, and yet so gradual as that which developed the pointed arch cannot, at this distance of time, ever be conclusively fathered on any individual architect. A few words from the Bishop of Lincoln concluded the meeting, the right reverend speaker dwelling appropriately on the sense of tranquillity inspired by the contemplation of such ancient and noble structures as our cathedrals, in contrast with the stir of nations and possible overthrow of dynasties now disturbing the Continent, and urging also the necessity of using the cathedrals, not only as objects of architectural study, but as structures available for public worship on a grander scale than has hitherto been realised. Whether these noble edifices can thusbe made, permanently, of practical value to modern England, time must show.

Tuesday morning found a numerous party, architectural and amateur, assembled at the west door of the cathedral, to accompany their guide through the building. The survey was arranged, as far as could be, chronologically. The centre portion of the west front, containing the work of Bishop Remigius, is, as most persons know, the oldest part, and it is noticeable that this portion of the work, which looks as firm and solid as when first erected, is built with the thick mortar-joints, the use of which has been so advocated in our pages, and of late by others. The details of the centre doorway are of later date, and those of the north and south doors in the west front later still, though even the latter preserve the Norman character in general style, the progress of transition being only marked by the altered treatment of some of the characteristic Norman ornament, especially the interrupted zig-zag, where two pairs of lines of zig-zag ornament dovetail, so to speak, into each other. Much correspondence and lamentation arose, some years ago, concerning the "restoration" of these doorways. The richly-carved shafts are nearly all restored work,—in fact, new shafts inserted bodily, but carved from old fragments; and in the south door, while one jamb has been entirely re-worked, the other, which was the best preserved, has been retained in its original state, as a proof of the fidelity of the restoration. From the east end we go, following the chronological order of events, to the choir of Bishop Hugh, or (as we should rather say), of Noyers, his architect, whose work may broadly be said to be included between the eastern walls of the two transepts, including, that is to say, the whole of the east transept, and one wall of the west transept. Nowhere perhaps could the history of the development of Early Gothic be better traced than in this portion of Lincoln Cathedral. The eastern transept is of the boldest and finest Early Gothic work, not without some strong French touches here and there, as in the position and plan of the apsidal chapels projecting from the east wall of the transept, and the plan of some of the principal piers in this locality, with their boldly projected disengaged shafts, connected, however, in this case with the main pier by a series of projecting curls or crockets partially filling up the gap between the centre column and shaft. Round great part of the east transept and the choir aisles adjoining, runs the splendid double arcade in the lower story of the wall, and in this and other specimens of wall-arcading in the immediate vicinity, can be traced all the stages of foliated carving, from the earliest rather stiff conventional foliage with its large round lobes (in the arcade aforesaid), to the perfection of free yet purely conventional Early English capital, and (in a screen wall between south aisle and choir) the near approach to *naturalism* in the richer but less entirely satisfactory decoration of the fourteenth century. Mr. Sharpe was consistent in his warnings to his younger architectural friends, more than once repeated, to avoid direct copying of natural foliage forms in stone, but always to conventionalise, as we have long taught. The search after architectural style is again exemplified in the almost wild irregularity of detail in the triforium, especially of this choir, where the tentative experimental attempts at what was afterwards to develop into geometrical tracery, are evident in the variously-shaped piercings in the spandrels of the arches, in many of which the sections of piers and arch-moulds, also, are much varied, as also the manner of introducing and grouping the Purbeck marble shafts, so profusely employed in this part of the building, as if the architect were determined to try all methods of obtaining a piquant effect. This irregularity in smaller matters, shown also in the curious arrangement of the vaulting surfaces at the eastern crossing, where the centre of the vault is by no means in the centre of the plan, and in the fact that the axis of the choir and nave is not strictly in a line, is the more striking in a cathedral which conveys to superficial observation such a general impression of completeness and comparative uniformity. In the west transept the work of Bishop Hugh comes to an end in the east wall, about two-thirds of the distance from crossing to the south front of the transept: here, though the main design is continued, a marked alteration and attenuation of the arch-moulds in the wall-arcades shows where the work had ceased for a time (possibly from deficiency of funds), and been again resumed some twenty or twenty-five years later. In the upper portion of this transept is (on the south face) the well-known Late circular window, so often engraved; and on the west side of the transept the south porch, so perfect and rich a specimen of the late "lancet" style, offered more for admiration, though less for comment, than almost any other portion of the building. In the north transept the singular effect produced by the line of the northernmost vaulting-rib falling *below* the lines of the circular-plate tracery window drew from Mr. Parker the suggestion, almost amounting to assertion, that the vault had been re-erected after the fall of the central tower, and rebuilt at a lower level than before. But there is no trace in the triforium story of such a disturbance as must have been caused by altering the level of the springing of the vault (though there is plenty of evidence of the attempt to strengthen the triforium after the catastrophe by casing the shafts, &c.); and, moreover, we discern, if we mistake not, a distinct flattening or rather depression of the crown of the round arch over the wheel window, where the longitudinal vaulting rib cuts it, which must clearly have been made at the time of building, in order to allow for some slight miscalculation as to the height of the centre rib. A question from a member of the party as to the structure of the nave between the ribs (where it is plastered over) was deferred for further consideration till the adjournment to the presbytery, where the vaulting surface is exposed to view. Before this, however, we diverge a little from our chronological path to consider the organ-screen, a monument of what florid late Gothic could achieve at its best. Every portion of this remarkable screen is covered with carving of the most elaborate and delicate description, the whole surface of the panels between what, if it were wood, might be called the "stiling," being completely carved into a diaper. Less richness might possibly be more effective, but it is impossible to be hypercritical before so perfect a specimen of a remarkable period of the art. Hence we repair to the presbytery, the "angel-choir" as it has been termed, from the figures of angels in alto-relief in the spandrels of the main arcade. In what abnormal fashion the east end of Lincoln Cathedral may once have terminated can probably never be known now; that it was abnormal is probable from the fact that the building was confined at the east end originally by the city wall which crossed at this point, and which was removed in 1256 by a special permission from the sovereign, in order to allow room for carrying out the present design. Standing under the roof of the presbytery, at (any rate, as Mr. Sharpe observed, with an enthusiasm fully responded to by his audience, in the presence of "the perfection of Gothic architecture,"—in the face of this perfection, however, did doctors differ, and that materially,—and reverting to the question before raised, as to the treatment of interspaces of the vaulting, Mr. Sharpe, continuing his urgent and really almost solemn appeal to his young professional friends against the use of over-much colour, deprecated any decoration of the vaulting which would hide the masonic construction, and recommended leaving the vault surface untouched. To this responded Mr. Parker, that in his judgment all Gothic buildings not only had been entirely coloured internally, but had been designed by their architects with that view. Hence a tolerably animated discussion, majority resting apparently on the achromatic side; and opining that, granting undeniable evidences of colour, the said colour was not due to the original architect, but rather to ignorant hands defacing his work. Mr. Sharpe made a strong point in favour of this view by reminding his audience that in the Mediæval wall-paintings, such as are known, the architectural features (canopies, &c.) were almost always incorrectly drawn. Is it not, we may suggest, likely enough, that the same ecclesiastics who illuminated the Missals also illuminated the buildings in a similar style, either with their own hands or under their direction? *Au reste*, there is little need to dwell on beauties so well known as those of the Lincoln presbytery, with its exquisite triforium and east window, the perfection of geometrical tracery. In regard to the Purbeck shafts in the triforium, which have at some time been whitewashed over, a question arose how far the employment of those dark-coloured shafts was advisable in the centre of the opening against the dark shadow behind. A few of these shafts and capitals have been scraped and polished with a view to try the effect, but it must be admitted that the effect of those which are left white against the shadow is more satisfactory, if one could only forget that the effect was produced by whitewash. The monument and reliquary to the memory of the Burghersh family possesses both architectural and archæological interest, and is a type of a class of monuments not uncommon in great churches, which may be termed "Founder's monuments," and which, being commonly immediately subsequent in date to the building in which they are found, often afford very valuable illustrations of the change of style. An interest of another kind attaches to the monument recently erected to the memory of that excellent and hardly sufficiently honoured painter, William Hilton, born at Lincoln 3rd June, 1736: the monument is illustrated by bas-reliefs of some of his principal pictorial compositions. A point in the choir of Bishop Hugh, which we should have alluded to, is that the shaft in each pier towards the centre aisle (which goes up to form the vaulting shaft) has been cut away below to make room for the wooden stalls subsequently added, and terminated above by a corbel inserted; the effect is peculiar, and at first sight somewhat puzzling, giving as it does a much "later" outline to the plan of the pier. From the presbytery we reach the well-known cloister and chapter-house, with its central clustered shaft; and from the Dean's garden (through the cloister), into which the party were kindly invited, a fine and rarely-seen view of the north flank of the cathedral is obtained. It is a pity that the authorities of this splendid cathedral cannot contrive to have a musical service worthy of the edifice in which it is held; the effect of a small handful of not over good voices going sleepily through the Psalms to a nondescript chant furnishes but an ill omen for the promised "new life" which is to be brought into the cathedral system.

On the afternoon of Tuesday, the party visited two churches close to the town, St. Peter, Gowt's, and St. Mary-le-Wigford, in order to shorten somewhat the programme for the next day; passing on the way the bit of Norman building known as "John o' Gaunt's stables," and showing some curious and unusual incised ornament. In the first of the two churches mentioned there is nothing of very special interest; but let none of our readers visit Lincoln without seeing that of St. Mary-le-Wigford (close to the railway station), where they will find some of the most beautiful Early English work, in the shape of piers and capitals, which could well be met with; St. Peter's also can show an early pier, of good and unusual section, and with a very elegant base. The evening meeting at the Assembly Room, again attended by a considerable number of amateurs, was taken up by a very clear and concise exposition by Mr. Sharpe, of the history and genesis of Gothic mouldings in the various styles, illustrated by a number of full-size sections, a portion only of a very large collection, much of which is still unpublished. It was impossible to study this fine collection of mouldings without feeling how much architectural effect is, after all, independent of carved decoration—how much of really solid and beautiful masonic art is attainable by contrast of surfaces and shadows alone. Besides the ecclesiastical structures, there is little of architectural interest in Lincoln, either ancient or modern, worth going out of the way to see. One drawback to a residence here, the readers of recent numbers of the *Builder* will not be surprised to hear of, we counted, if not quite Coleridge's "two-and-seventy," at all events, "several" stinks peculiar to different parts of the town. How we visited the neighbouring churches, and what we saw there, as Spenser says, "if ye list, another rede shall tell."

PLEASING THE EYE.

Where art is concerned, the faculty of seeing becomes itself an art."—*Mrs. Jamieson.*

"The art of architecture does not consist in words; the demonstration ought to be sensible and ocular."—*Freart.*

The proverb, "If ignorance be bliss, 'tis folly to be wise," may occasionally be truthful; seldom, if ever so, in pleasing the popular eye by over-decorating buildings both public and private. There are two ways of pleasing the eye; one by crowding as much vulgar ornament upon the surface of a building as possible; and the other, by decorating an edifice with suitable cornices, mouldings, and superficial decorations, nicely distributed, so as to realise a well-balanced light and shade. When a building is covered with finery, in which our Continental neighbours indulge so largely, there is no contrast, no light and shade; a plain building is all light, and an over-decorated building is all shade.

A writer in 1736 observes "that folly in building is one of the most lasting reflections on a man's character, because it is not only universally known in his own time, but is often perpetuated through many generations." This proves the importance of entrusting works of architecture and sculpture to educated and careful hands; and he very properly continues that "true taste is not to be acquired without infinite toil and study; and we are generally too indolent to accept of an advantage on such terms. This is the real occasion why a false one is so apt to prevail, and, in a division of mankind, would number three to one in its own favour."

The powers of taste have been naturally uniform in all, but unfortunately these powers, in the bulk of mankind, have not been cultivated. The accomplished Claude Perrault, architect, of the seventeenth century, asserted that what is agreeable to the eye is not so, on account of its proportion, when the eye knows it not, as it very often happens.

Gerard, in 1780, says that incorrectness of taste may arise, either from the dulness of our internal *senses*, or from the debility of judgment.

As far as architecture is concerned, the eye must be educated. "Taste," says Jackson, in 1795, "is not a gift of nature, but an acquirement of art—nor is it easily acquired." Knight also, in 1806, perceived this, when he wrote that in a Grecian building, in which the relative proportions of the different orders of columns were not observed, a person skilled in architecture would instantly discover a want of symmetry, which, to another of even more correct taste, as far as correct taste depends on just feeling, may be utterly imperceptible.

Burke endorses the necessity of educating the eye, by considering that the principal causes of the difference of opinion among those who criticise in architecture, are owing to their different degrees of knowledge of the principles of the art; for critical taste does not depend upon a superior knowledge: it is the offspring of learning and a just education, and is always more or less within our power.

The ear is naturally pleased with simple melodies, and the eye with natural scenery; and as musical compositions of the highest mental class require an educated ear, so likewise do architectural and art compositions demand a cultivated eye. In the latter cases, which claim an extensive and profound knowledge of all the laws dependent upon good music, architecture, &c., a natural taste will fail in pleasing either the ear or the eye. When the painter pourtrays natural scenery, he pleases by copying nature; so likewise the sculptor, when he copies living forms; but the moment art steps in, and design and compositions are attempted, then education must be enforced. This subject has created more conflicting opinions among men of letters than any other, and is seldom clearly explained.

The infant, urges an essayist, when it first opens its eyes to the light, looks upon a world of wonders, and can form no correct idea of any object which it sees, until it has also touched and handled, tasted, or smelled it. The moral of all this is, that sight, like every other faculty, requires careful education, and the pitch of perfection to which it can be educated is truly surprising. Very seldom is it sufficiently and properly exercised. Most men walk about this beautiful and wonderful world as if they had a veil before their eyes; vision is to them but a half faculty, a dull, almost inert sense. Sir Joshua Reynolds says, that if a man born blind were to recover his sight, and the most beautiful woman was brought before him, he could not determine whether she was handsome or not. With all due deference to so able and distinguished a writer on art I differ *in toto*; no education being required here, the man would be as naturally charmed with the female form as he would be with a beautiful landscape. Nature acts in these cases, not art.

Cicero, speaking of the stateliness and magnificence of houses, urges that "there certainly ought to be some bounds fixed and prescribed to these things, and those to be according to the rules of moderation; but the measure whereby we are to judge of their being moderate is their subserviency to the ornaments of life."

In the ornamentation of a private mansion the owner can expend as much as he likes, although, morally speaking, he ought not to offend the eye even of the public. But it is a serious matter to expend the public funds in superfluity of decoration, and that for several reasons: the money might be more usefully expended in alleviating actual misery and want; the popular eye ought to be educated; and those selected to design public buildings ought to be capable of approaching the subject with a sound architectural knowledge, having respect for all that is good in precedent and antiquity: a mere decorator should never be employed.

In reference to educating the eye architecturally, the more the subject is inquired into the greater is the difficulty, and for this reason, that the buildings left us by the architects of Greece and Rome vary so much in their proportions, not in merely those appertaining to each edifice as a whole, as in the details. Architects have evidently been too timid with the classical remains of antiquity, hence the reason why architecture has been an exception to the law of progress.

It has been considered that the excessive respect architects have for the antique, takes its rise, as unreasonable as it is, from the respect which is due to holy things. To obtain a correct knowledge of the beautiful in art requires much study, as fashion, or custom, has sanctioned abuses which should be avoided. These have been pointed out by Perrault, Palladio, and others.

If the public eye were educated, architects possessing a correct knowledge of proportion would undoubtedly obtain more practice than those who, without that knowledge, please the uneducated eye, by employing artists to embellish their designs with natural scenery, landscapes, and all those charming accessories which are ever pleasing to the natural or uneducated eye. To the latter, an ill-proportioned building, say a church without a chancel, having a polygonal apse stuck against a cross church tower, or any other deformity, is rendered pleasing, but the educated eye is not misled because the critic, giving credit for the landscape, fails not to judge the design of the building upon its own merits. A good building with a bad landscape will receive censure, but an ugly edifice with a charming scenery will obtain a reward.

The young artist's mind must be educated through the eye; and, notwithstanding all that has been said by essayists against rules and systems, they are absolutely necessary in training the young mind. Rules and systems are little required by the advanced student. The architect and artist need not be modest in enforcing arbitrary rules to aid instruction, the more especially when we look around, and find the planets named after heathen deities, and the pretty simple flowers, so grateful and intelligent to the most childish eye, pourtrayed by the so-called scientific botanist with the most extraordinary complicated systems, of which Nature knows nothing. There is a fine opportunity for the astronomer and the botanist to simplify the whole, and render these beautiful studies more enticing and intelligent to the inhabitants of the world, instead of to a small class, at best but badly instructed in dead languages.

An educated man enjoys, through the eye, many pleasures that the vulgar are not capable of receiving; he can, as Addison says, converse with a picture, and find an agreeable companion in a statue.

I do not agree with Bacon, that houses are built to live in, and *not to look on*. An ugly building is offensive to an educated eye, and tends to demoralise civilisation. "If beauty," says Alberti, "is necessary in anything, it is so particularly in building, which can never be without it, without giving offence both to the skilful and the ignorant."

For pleasing the architectural eye there have been many suggestions and practical experiments. Knight ventured to build a house ornamented with Gothic towers and battlements without, and with Grecian ceilings, columns, and entablatures within. Fortunately, the public had better taste than the essayist, and did not follow his eccentricity, although he congratulated himself upon the success of the experiment.

Sulzer, in 1806, recommended the cube for small dwelling-houses, the adoption of which has unfortunately been, until recently, but too general, and disfigured both town and country with monotonous boxes, more useful than ornamental. The dwarf shrubberies added like whiskers, on each side, instead of relieving their appearance, made them more ridiculous.

The writers on taste of the eighteenth and early part of the nineteenth century had a certain distemper, neither mentioned by Galen nor Hippocrates, termed by Juvenal *cacoëthes scribendi*, and cited by Addison as a hard word for a disease called in plain English "the itch for writing." Had Freart been acquainted with these writers, he would have called them *cicaloni*, a term used by the Italians to designate "eternal talkers to no purpose." Of course there is a large amount of good common sense in their dissertations on moral beauties, but an ignorance of architecture is to be traced in all the essays. It would have been better if these amateur writers had not touched upon architecture, as it is a subject capable of exact demonstration, and ought not to be mixed up with sensations of the palate, dreams, sudden love, dancing, &c. I can understand an architect being versed in the manners, customs, and modes of life, but it surely is not necessary for him to be bored with the passions, however sublime and pathetic they may be. It would have been more edifying to the general reader, if these writers on taste had appended instructions in the art of cookery, instead of their unmeaning comments on architecture, of which latter they knew nothing, having made unsavoury hashes of the subject.

The architect will find it by no means a waste of time to ramble over the past, and to detect the errors of the architects and essayists on taste during the past century; a study which will tend to induce him to think, and will not be found altogether unprofitable or uninstructive; on the contrary, it will lead him to correct his own professional judgment. Sir Joshua Reynolds was of opinion that the habit of contemplating and brooding over the ideas of great geniuses, until you find yourself warmed by the contact, is the true method of forming an artist-like mind; it is impossible in the presence of those great men, to think or invent in a mean manner; a state of mind is acquired that receives those ideas only which relish of grandeur and simplicity.

In conclusion, the eye should be taught to criticise correctly the various styles of architecture; all maxims and theorems studied relating to architecture proper; painters or picturesque architecture must be shunned, such as spiral columns, scooped pediments, Claude and Gaspar's mixtures of Grecian and Gothic in the same building; also French fopperies and decorations, with which Addison was so disgusted that he heartily wished there was an act of Parliament for prohibiting their importation. The observer must remove from his mind all felicities of real genius, sensations, feelings, affections, emotions, and romantic dreams. Without a correct knowledge of all that is good, and what to avoid, the critic's "fire of criticism" is mere smoke.

W. Pettit Griffith, F.S.A.

MODERN ARCHITECTURE IN INDIA.

A lecture on Architecture delivered in India by Lord Napier includes passages which will interest many of our readers. After urging that in selecting materials the architect should consider two things chiefly;—1. The sources of supply; and 2. The object of the structure, Lord Napier proceeds:—

If the rules concerning material which are here enunciated are correct, I need scarcely say that they are in every respect so violated in India on every hand as to rouse the regret and condemnation of all reasonable critics, and to make the virtuoso weep. Madras is the epitome of every error that architecture can commit with reference to material. Look at the Railway Station, the High Court, the Custom House, the sea front of the Fort buildings, all discovering the same shameful condition of chronic disfigurement and decay, all blistered, discoloured, and crumbling, the victims of an unequal strife between the elements and stucco. Yet at no great distance there are inexhaustible supplies of the

finest stone, and the very soil beneath our feet teems with clay which only requires the skilful exercise of a familiar art to yield qualities of brick and terra cotta competent to resist the attacks of the blast and the spray for ever. The Presidency College and the Sailors' Home are the first attempts to build in an honest manner with undisguised materials, but the art of preparing them is not attained in a day, and I fear that we can scarcely regard these buildings otherwise than as the forerunners of a better era.

I turn my eyes with satisfaction from our own misdeeds to the more attractive errors of our neighbours. Two considerable buildings have been recently erected under English impulse and superintendence in two Native States. I speak of the Public Offices at Bangalore and the Public Offices at Trivandrum. Both countries possess peculiar materials in the highest perfection, and both were in possession of ample financial means. Mysore is the region of granite. Travancore is the region of wood.

At Bangalore it is natural to suppose that in a great public building the plain external walls would be constructed for cheapness and variety of colour of substantial, well-prepared, well-tinted brick, while the columns, corners, entablatures, and cornices would be composed of granite, which is procurable with the greatest facility and at comparatively little cost. No more natural, beautiful and durable combination could scarcely be conceived. But not at all. Instead of this, you have an immense, well-distributed, and useful pile, constructed of materials too perishable to remain uncovered, so that the whole edifice is cloaked in cement of a very coarse texture and dull uniform hue.

In Malabar, there are still, on a small scale, examples of a very picturesque order of local architecture, which has been fashioned gradually, in past times, in obedience to the properties of the most accessible material and the requisitions of the sun and the monsoon. The solid portions of the structure are of laterite or brick, but the detached and salient parts, the columns, the deep eaves, the high-pitched gables, the shady and protected verandahs, the overhanging balconies, are constructed of the splendid woods of the country admirably wrought. The gateways of the Temple at Trichoor, the pagoda at Tellichery, the older portions of the Palace at Trivandrum, the remarkable ancient residences of the Princes of Travancore at Pudmanavapoorum, offer attractive specimens of an indigenous art which is fast yielding to decay and the usurpations of European conventionalism. But in the construction of the public offices at Trivandrum there was a fortunate opportunity to build with local materials in the native style, and to unite both with the expansions and modifications necessary for the convenience of civilised administration. With brick or laterite for the inner portions of the fabric, with teak and jack wood for the porticoes and colonnades, the Public Offices of Trivandrum might in ingenious hands have been made to harmonise with the past and the present, to grace the landscape, to resist the weather, and to suit the habits and instinctive tastes of the native officials and population. The opportunity has been signally cast away. There was no want of liberality, no want of good intentions, but the despotism of foreign example was irresistible, and a costly edifice of the familiar plaster, classic type, which looks as if it had been designed in some European art academy in the second decade of the present century, affords an asylum to the cutcherry and durbar of the Maharajah of the Nairs and Moplahs. I may remark that meanwhile the beach at Aleppy was strewed with magnificent timber which the Government of Travancore neither sell nor use.

It is only just to add that the railway companies have in India, as in England, done much to accredit the use of solid, honest, and appropriate materials in construction; that the Art School of Madras is solicitous and active in the same direction; and that the Government is building an improved brick and terra-cotta kiln under the direction of the Department of Public Works, which will emancipate our public architecture for ever from the tyranny of chunam.

Let us now proceed to consider the question of style. Speaking broadly, there are four styles of architecture disputing the soil of India at the present time: the Hindu or Brahminical, the Mussulman, the European Classic, and the European Mediæval. These several styles claim our attention with reference to cost, to convenience, to beauty, and in regard alike to public and to private buildings.

There is no order of architecture belonging to an ancient and civilised people absolutely deficient in the elements of grandeur, and those who neither accept the principles nor admire the decorations of the Brahminical style may yet approach its capital monuments with interest and respect. Long before the traveller reaches the sacred precincts, whilst he is yet winding slowly over the weary plain, his eyes are fixed on the lofty pyramidal towers which preside over the Indian landscape with harmonious solemnity. As he draws near, the porticoes for the accommodation of pilgrims and for the purposes of traffic form a secular and popular adjunct to the temple, full of picturesque life. On one hand, the stairs descend to beneficent waters; on the other, the Pepul throws its religious and salutary shade. The entrance to the abode of the gods is fashioned with stupendous solidity. Within the walls the multitude of cloisters, galleries and pools, the profusion of ponderous material and delicate sculpture, and the dimness of the inner shrine, all combine to affect the imagination with those impressions which belong to vastness, mystery, and the lapse of incalculable time, to the patient, devoted application of human labour, and the ceaseless tribute of human worship. The Brahminical architecture is imposing; it is even poetical, with its accessories: yet, regarded both from a scientific and an æsthetic point of view, it is manifestly defective. In the Brahminical style, the ruling feature is the horizontal line: the wall or the column supports a beam, the beam supports a flat roof. When the building is lofty, the fabric ascends by successive horizontal stages, one succeeding another in diminishing proportions to the apex. The inherent poverty of this method of construction is often ingeniously concealed by decoration on the contours, and the fabric rises with a certain measure of continuity and elegance; yet the fundamental features can still be discerned. The characteristics of the style, as practised in the temples of Southern India, are a multitude of supports crowded together, small intervening spaces, square apertures, horizontal superposition, a vast expenditure of solid material and radical defects of form disguised by minute ornamentation. I know that in the northern varieties of Hindu building there are elevations externally of a curvilinear and sometimes of a domi-form outline; I know that the ancient Jain and Buddist builders were familiar with the construction of a dome on mechanical principles consistent with moderate proportions, and that some of their apertures have the configuration, if not the true constructive qualities, of the arch; but I seek not to explore the recesses of antiquity or to analyse all the diversities of style which at different epochs the different provinces of this vast peninsula may have disclosed. It is abundantly clear, from our everyday observation, that the arch and the dome are repugnant to the genius of the Hindu architecture, and have been for many ages practically unused by the Brahminical builders. But the introduction of the arch was the emancipation of architecture from the despotism of material. The arch and the dome are the most beautiful, the most scientific, and the most economical forms of construction; they are the proper methods by which large spaces can be covered; they are indispensable to the usages and recreations of modern public life. Considering the mechanical deficiencies of the Hindu style, and the predominance of sculptural ornamentation which it exhibits, it appears to me to be unavailable, under the present Government, for the purposes of the State, and ill adapted for the common and public use of the collective people. But is the Hindu style of building, for that reason, to be banished and degraded from all secular use, as is the case at present under the influence of unreflecting and ignorant innovation? Most certainly not. The methods of Hindu architecture may be practised in moderate dimensions with the greatest advantage, and they are perfectly adapted to the wants of the people. Domestic architecture should be the expression of social institutions and the necessities of climate. The principles of the old-fashioned Indian dwelling were seclusion and shade. For the women a tranquil, retired, and busy retreat; for the men privacy and repose after the labours of the day and protection from the scrutiny of grasping authority; for all, shelter from the sun. In its principal features it is the dwelling of the ancient Italians which we have exhumed, it is the dwelling that we admire at Damascus. To the street a plain exterior pierced by a few apertures, but often furnished with a hospitable porch, supported by stone or wooden columns of quaint design. A narrow door, deeply sculptured, leads into a court supported by a pillared verandah on which the private apartments open; behind this the offices and the habitations of the domestics. The interior court is the charm of the whole, it is the feature which the Indian house-builder should never forsake, and it is just the feature which he is giving up. It forms the most becoming frame for the life by which it is animated. It is in perfect harmony with the figures, the costume, the ornaments, the primitive industry, and the simple furniture of the inhabitants. The columns, the beams, the cornices, the panels of the ceilings, the doors, the pavements, all display the mouldings and patterns in which native art is so rich, and over which the patient native workman delights to linger. The ugly conventional image sculpture of the pagoda scarcely invades the Indian home, but some pleasant tree natural to the soil will add its rustle and its fragrance. There are such interiors still in Madura and Tinnevelly, of very modest pretensions, but which nevertheless reveal a true artistic character. Now, if this domestic architecture of other days discovers even in its humility a perfect appropriateness and a powerful attraction, what might not the same architecture become at the present time in the hands of a person of ample means, cultivated taste, and intelligent patriotism? If all the proportions were expanded, if all the materials were selected, if all the designs were chosen for the most exquisite and correct patterns,—and of such the whole country is a storehouse,—I do not hesitate to assert that nothing in the world could surpass it. Yet what do we see? The moment a native of this country becomes educated and rich he abandons the arts of his forefathers and imitates the arts of strangers whom, in this respect, he might be competent to teach. Nothing is more lamentable than the corruption and confusion of taste which is everywhere apparent, combined with unmistakable evidence of increasing opulence and an honourable desire for domestic comforts and decoration. The Hindu and European styles and ornament are all jumbled and piled together. In some thriving provinces a favourite improvement appears to be to build a Doric upper story, with plaster pillars of immense diameter, over the unpretending porch of the last age, with its slender Indian granite shafts. The same malady which infects the middle classes attacks the highest. I had the pleasure of visiting, not long since, in his country residence, a native nobleman, who, in addition to all the gifts of birth and fortune, possesses in his person and manners an unusual share of dignity and grace. I need not say that there is a numerous retinue and an overflowing bounty to Brahmins and native strangers. But the Jaghirdar recognises the duty of hospitality in every form, and he has built himself a little palace in a pleasant garden, where he delights to honour his European guests. It may seem ungrateful to me to criticise a dwelling in which I was treated with so much respect and kindness, but I could not repress a sentiment of regret when I found that every trace of native style had disappeared from the most recent example of native building, and that a handsome European villa, of spotless chunam, had risen among the grey pagodas and choultries and the whispering palm-trees.

It is possible that I may be speaking in the presence of some native gentleman who has made a fortune by the exportation of cotton, and who is about to build a new house. The case is not common in Madras, but it is not incredible. If there be such a one here, I beseech him to pause before he sanctions the modern "Muster" which I mentally see before me. I say to him, Discharge your Madras architect, and take a maistry from some remote part of the Mofussil where the traditions of the fathers are still preserved. Determine to have a national house, but such a house as an Indian gentleman should inhabit under an honest Government, in an age of peace, justice, and learning, a house in which the light of heaven and reason and freedom can penetrate. Adhere in general to the ancient plan, and especially to the court and colonnade; collect all the best models and patterns of native mouldings and sculpture; use brick of the finest quality, from the School of Arts, for the exposed surfaces; employ timber for the pillars within, Cuddapah stone for the pillars without, glazed tiles for the floors; make a liberal use of ornamental stucco and painting where the rain cannot penetrate;

fill the unglazed apertures with the beautiful tracery of which Indian art offers an unrivalled variety. For glazed windows, authentic models may be wanting; but they can be treated in the spirit of the style; and the Government architect can show you how. Get all your carpets from Vellore, and your stuffs from Madura and Tanjore. Where the Hindu patterns fail you, borrow from the Mussulmans. Make a sparing use of European furniture, and endeavour to harmonise it with the native forms. But in doing this, make everything lofty, light, bright, spacious and accessible. The task would not be easy, but it can be done; and every effort would be better than that which preceded it. Endeavour to realise this, that the Indian arts which you are at this moment casting away here are at this moment in London and Paris an object of inquiry and study to the most learned and cultivated minds. Do not imagine that you are required to do anything unprecedented. All I ask you is to do what has been done in Europe itself. In Europe the ancient national arts were for a couple of centuries as much forgotten and despised by us as the ancient national arts of India are now forgotten and despised by you. You have hitherto imitated our errors. I call upon you to imitate us in correcting them. I may add that an admirable opportunity now presents itself for an intelligent revival of the domestic architecture of the Hindus in the construction of a small palace at Bangalore for the residence of the young sovereign of Mysore. The building will be placed, I believe, in juxtaposition with the dilapidated but beautiful Durbar Hall, constructed in a mixed Indo-Saracenic style by Hyder Ali. There is no want of time, there is no want of money, and the authorities mainly concerned are an accomplished civilian and an accomplished soldier, Mr. Bowring and Colonel Malleson, both trained in the North of India, where secular and palatial architecture attained under native government the most exquisite perfection. I expect the result with curiosity.

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I now come to consider the forms of architecture introduced by the English in this country, which reflect the condition of art in England itself.

In an artistic point of view, the contemporary use of conflicting styles of building, or the abrupt addition and juxtaposition of modern styles of one type with older styles of another, is undesirable. The most conspicuous proofs of this may be seen in English cities at the present time, when one style is generally used for domestic and another for public and sacred structures, and where occasionally private houses of an unusual character are thrust into long rows of habitations of the familiar sort. We have private houses, which, for convenience, I may designate as Classical and Gothic churches, and here and there we see a Mediæval house interposed among its Classical neighbours. The horizontal and ascending lines are thus mixed up in our streets and squares, in a fashion which offends and perplexes the eye; decorations and details are not diversified, but discordant; buildings acquire the appearance of specimens or imitations selected capriciously from the examples of the past; art ceases to be the expression of any necessity or taste common to the age; and its harmonious development, in conformity with new social requisitions, is materially retarded. This state of affairs is the more deplorable, because it is unquestionable that our ancient national style of building, as it existed before the substitution of the Classical for the Gothic forms, was equally available for secular and religious purposes, that it was susceptible of developments suited to modern life, and that it comprehended varieties of outline and ornament which would have defended it against the reproach of a tedious uniformity. The northern nations of Europe do not require more than one style of architecture, comprising, of course, the local and subordinate diversities, which the use of stone, brick, or wood, opulence or poverty, exposure or protection, and similar secondary influences would naturally produce. Those nations have all virtually the same religion, the same institutions, the same climate, the same habits of life. It is more easy, however, to lament the existing confusion than to correct it. No one can predict to what issue we are drifting; no one can tell whether the prevailing chaos of taste will settle down into some new order, or whether the architectural anarchy is to last for ever.

The harmony of architecture which might have been preserved in England, and indeed throughout all the nations of Germanic origin, could not be expected in India, where for centuries two peoples, sharply opposed in religion and distinct in many other respects, have occupied the soil, and where a third race and a third religion have recently been planted in artistic antagonism with the others. Under these circumstances, contrasts were unavoidable, and my countrymen have certainly done nothing to mitigate them. The English have simply transported to India the fashions and revolutions in architectural taste which have occurred at home, but following them leisurely and being always behindhand. We, too, live and work in one sort of building and worship in another. The ruling opinion at present appears to be, that the Classical style is good for habitation, and the Gothic indispensable for prayer. I venture to dispute the first position, and I most earnestly deprecate the second.

It would be unjust and ungrateful to depreciate, in all respects, the buildings which we inhabit, and which for the most part we owe to the liberality of a former generation. Many of the houses of Madras are constructed with due regard to the nature of the climate, and in proportions which far excel anything with which we are familiar in England. Some even indicate a higher cultivation and feeling in art among the official architects in an earlier period than is usually found among those of the present time. It must be admitted, however, that there is a mournful uniformity of design externally, a total absence of colour, and a disgraceful poverty of material; while the authoritative practice of this kind of building is not only at variance with all that India itself formerly produced, but, by the force of example, tends to pervert the taste of the natives of this country. If the Classic houses are bad, the Gothic churches are worse. The Gothic style of architecture, which was developed in a temperate climate, cannot be rendered appropriate to a tropical one, without modifications of structure, which only an accomplished and inventive artist could design. Of all the styles which possess a perfect mechanical development it is the most expensive. It demands the finest materials and the most delicate treatment; painting and sculpture in their highest forms are alike indispensable to its perfection; and though it may not absolutely exclude the use of brick, it is decidedly uncongenial to that material, the extensive use of which is so indispensable here. The ordinary style of a Gothic church in India may be seen in Blacktown or in Vepery,—meagre, cheap, plaster counterfeits of the glorious originals to which we affectionately turn in memory and in hope. I know that there are happier attempts. At Megnanapoorum, in the sand wastes of Southern Tinnevelly, the energy of an enterprising missionary has raised a fabric in the Early English style, which would grace the plains of Suffolk or Lincoln, and in which I have heard 2,000 Tamil voices mingled in Christian psalmody. At Edeyengoody, the most learned pastor of the Shanars, but who counts his learning for nothing compared with the service of the Lord, trains the Indian mason in the arts of the northern craftsmen, and watches over the growth of a Decorated structure, which will be the creation of his life and the monument of his ministry. Even the Roman Catholics at Dindigul and elsewhere are following the same track. I admire the piety of the founders, but I question the wisdom of their selection. I question the propriety of adopting the Gothic as the architectural type of Indian Christianity. It cannot be necessary, for Christianity flourished for a thousand years before the Gothic was invented, and for three hundred while the Gothic was in abeyance. It can scarcely be desirable, for the Gothic is remote from the forms of Oriental art and from the traditions of the Oriental Church. It may be objected that the notion of bringing Christian architecture into harmony with the native architecture of India is impossible, and that if it were possible it would be of no importance. I grant that it is not of any serious or vital importance. It is a mere matter of fancy, of taste, not one of policy or morals. But I do not admit that it is impossible, and I affirm that if it is not done, the blame, if such there be, must rest with the artists and not with art.

I have already submitted that the Mussulman style of architecture offers, for secular public buildings, all the conditions of beauty and utility that can be desired. As a matter of personal taste, I see no objection to the adoption of the same style for the private habitations of Europeans. There is nothing in that style incompatible with our habits and beliefs. It allows no images, it uses no symbolical ornaments, it possesses nothing that essentially fixes it to any particular nationality or particular faith. The florid calligraphic inscriptions in the Persian and the Arabic characters, which occupy in this order of art the place of pictorial representations, can be dispensed with, or supplanted by the superficial linear combinations which are equally sanctioned. The rest is mere form and colour. Mussulman art is essentially spiritual and universal. Englishmen might, however, in general, demur to live in habitations constructed in a style which is historically and conventionally, if not by any positive principle, associated with races of a different religion and different manners from their own; and it is certain that Christians cannot assemble for worship in a mosque. Where, then, is the method of reconciliation between native and Christian art? To what point of approximation can the European advance? The history of art supplies an expedient. It contains a style of building which is at once Oriental and Christian.

While the architecture of ancient Rome assumed, in the hands of the Mussulman builders, that beautiful transformation which we designate Saracenic, the Christians of the East carried out the same original forms in another, but a cognate, manner, which prevailed for a time over Northern Italy and Asia Minor, which assumed in Georgia a type peculiarly ornate and picturesque, and which became the basis of the national architecture of the Russians. It has been revived in various parts of Europe in our own day, under the general title of Byzantine. The Byzantine style, like the Saracenic, embodies, as its distinctive features, the arch and the dome, while the slender separate campanile in the first answers to the minaret in the second. The arch has rarely, if ever assumed, as far as I remember, in the hands of the Oriental Christians, when used constructively, the pointed or the horse-shoe shape; but when used decoratively, it offers, in its superficial combinations and intersections, many resemblances to the Saracenic forms, resemblances which are still more apparent in the minor details of mural ornamentation. The two styles have ever retained a certain family likeness, and the common possession of the dome constitutes a capital point of union. While the Byzantine style of building is perfectly adapted for every domestic purpose, I need scarcely say that in the hierarchy of Christian styles it occupies the most venerable place. It was the first Christian style actually developed, and has a history as old as Christianity formed a finer since; has a hereditary Anglican it presents the image of the primitive centuries in which our Church lo[ved] with peace the patterns of her faith and ritu[al] by fo[rce] the Roman Catholic the architecture of [Rome] can never be repugnant; to the Protestant bodies generally it furnishes forms more simple than the Gothic, more suited to great congregations and to oral teaching. The question is a speculative one, and many might deprecate, in our present position, another innovation. But to me the Byzantine style seems to offer the best architectural type for Christianity in India, a type sufficiently distinct, yet most in harmony with one capital section of the ancient monuments of the country.

TECHNICAL EDUCATION OF THE ARTIZAN.

A visit to the Workmen's Exhibition, in Islington, and a glance at some articles of constructive carpentry and joinery in the Netherlands Section, bring forcibly again to our minds a subject which has often been advocated in this paper. To the building trades particularly our remarks refer. Until all our workshops become, in theory and practice, normal schools of art, the proper education of the artizan will not be effected. Skilled workmen, workmen who can plan out their work, as well as execute it with an artistic finish, are greatly in the minority, in all our workshops. Experience can produce an ordinary good workman, but no length of experience or following will compensate for the want of technical knowledge. To the carpenter, joiner, mason, stone-cutter and carver, and the plasterer, technical education is all-important. Parents who intend their sons to follow any of these trades ought, as a requisite, to see that their youths at school learn arithmetic and geometry. No tradesmen are more often

called upon to work out in practice the theories they have learnt in school than building mechanics. Euclid should be their text-book in youth; for a knowledge of its elements will, in after years, save them considerable pains and loss of time, and in many instances loss of employment. We consider that a journeyman carpenter, joiner, or mason, who requires his work "laid out," or "struck out," for him, is little more than a machine. It may be, and is, necessary, in large workshops, that the foreman should give directions, and furnish a working drawing, pencilled out on a piece of board. But though this may be necessary on the part of the foreman, so that the proper organization of labour in the workshop may proceed regularly, the workman should, if necessity required it, be capable of doing all that his foreman can do. The workman should thoroughly know the principles of his trade, as well as its practice; for occasions may and will arise when he will be called upon to trust to his own mental resources, away from his companions by the bench. The making of a sash, the framing of a door, the preparation of boxings and shutters for windows, and their fixing, comprise but a small amount of a joiner's work; in fact, this is merely what any apprentice of short standing can do. Give any workman a template or mould, and he must be very stupid indeed if he cannot properly prepare its counterpart. We wish to see our building artizans educated to the standard, that when the plan and detailed drawings of a house are put into their hands, they will feel no difficulty in undertaking them. Every mason and carpenter deserving of the name, if required, should know how to work to or from scale, and should find no difficulty in making working drawings from the architect's plans and instructions. The construction of a staircase has always been considered a pet job, among carpenters and joiners; and until late years there were but comparatively few hands in our builders' workshops who thoroughly understood the branch. Many even now of our professed staircase-hands hardly deserve the name. It is pitiable at times to witness, in some of our mansions or public warehouses, the things called staircases. Of course, we do not intend, when talking of staircases, to bring into the category those break-neck step ladders to be seen in modern houses of the "Jerry" class. We have often witnessed some first-rate houses completely spoiled, in an artistic point of view, by an abominably ugly staircase, the hand-railing often, if not invariably, being the most disgraceful part of the affair. We have known, in our experience, tons weight of valuable mahogany to be simply butchered by the most egregious blockheads and butchers of wood that ever handled a plane or gouge;—butchered, we repeat, from causes which are not creditable to mention. Perhaps it arose from the miserable saving of a few shillings, in the first instance, on the employer's side, who preferred it cheaply done; or, on the other hand, shall we say, the workman undertook to do a piece of work he knew next to nothing about. What is proved by this? want of technical education, both on the side of the employer and the employed; for if the employer had his eye educated he would be ashamed, for his own credit's sake, to allow bad workmanship to pass; and, if the workman understood the principles of his trade, he could not be a "botch."

It is indispensable that every building artisan should have a knowledge of "lines." The carpenter, mason, bricklayer, or stone-cutter who is ignorant of them is certain to be an inferior hand. If the workman can draw or properly "lay down" on a piece of planed board the work he is about to execute, he will feel no difficulty in his way, and will lose no time. If he cannot do so, and has no one near who can do it for him, he is certain to lose his time by a system of "groping," working by "rule of thumb," and undoing again and again what he has spent several hours over, doing wrongly.

No workman can put up an intricate roof or staircase who does not understand the setting out of the templates or moulds for its working, or for the "cuts;" and how many times have we not been a witness to the wasteful cutting up of perches of scantling to arrive at the proper "cut" for a rafter or purlin against the hip rafter. With a little technical acquaintance with "lines," the workman could set the proper bevel, and apply it to the end of his piece of scantling, and the work would be accomplished at first cutting. A knowledge of the development of curvilinear surfaces is requisite for both mason and joiner, and we think no better novitiate could be for the young carpenter-apprentice than to keep him, for the first year, in the workshop, in learning the principles of construction by the aid of drawing, and then making him, according as he understood the theory, work out the practice in the framing or putting together of articles entailing but a small waste of material. His time would be more profitably spent in this way than in spending his first twelvemonth in boiling the glue pots, heating the workmen's breakfast cans, and running on endless errands for the workmen. Under the eye and guardianship of intelligent foremen, the young apprentice could be moulded into the making of a good and skilled workman; and, in the absence of a special school of art for the technical education of the artisan, much and lasting good might be thus effected.

Of late years the exigences of life have destroyed many observances and requisites, and have forced into activity an unhealthy state of society. These changes are more observable among our working classes than in other quarters. The mechanic's son now, whether he be mason, joiner, plasterer, or painter's lad, has scarcely left off his long clothes when the father calculates on having him on the building with him as a help. Thus, hundreds of little boys, under their twelfth year, are learning the trade of their fathers—earning a few shillings a week, with hardly any education, and fated, in after life, to be, of necessity, indifferent and ignorant workmen.

Ordinary schools are plentiful enough now, and no boy should be put to learn his future trade without a tolerable primary education. But what is a tolerable education for the young artisan? Sufficient acquaintance with arithmetic and geometry as to give the youth the facility of ready calculation and measurement, and enough plain English to make him spell, read, and write correctly. This much, at least, is expected by society at the hands of the humblest artisan on behalf of his child. This can be had free, or at a nominal cost. The parent that would refuse to afford his children this much should be compelled to do it. State or municipal power should step in when the parent fails to see it done, and then if it is found the parent is able to pay, it should have power to recover the expenditure. Compulsory education, by all means, where the parents are able, but unwilling, to school their children.

We began our remarks in the Netherlands Section, in the Workmen's Exhibition, and we find ourselves nearly back in the nursery. There are a few things shown in constructive carpentry and joinery, on the part of the Netherlands, and illustrated by drawings, which are useful for the young apprentice to study and imitate. The simplicity of construction is made apparent on looking upon these things on view, but in their absence the youth would find it a little more difficult to understand from a mere drawing the technical lesson he can learn by their examination. The young carpenter can here see how cylindrical surfaces develop themselves, how joints and mitres are affected and change when they break on curved bodies or angles. Ribbed vaultings, curved panellings, elliptical hyperbolia and parabolic development may also be seen and traced, in inception and execution, and a good lesson in technical education may be learnt by the young aspirant if he wills it.

Good and excellent work is done in London in carpentry and joinery by English mechanics; none better need be wished for; but we cannot conceal the fact that execrable workmanship is also performed, and a large amount of it. Much of the work performed in houses that are built to "sell," hardly deserves the name of carpentry or joinery.

The establishment of schools of art, on a more enlarged scale than hitherto,—workshops not confined alone to artists in marble and colour, but workshops and studios, where the building craftsmen may learn, not only the theory of their different trades, but the principles on which they are based,—this is what is wanted. The same necessity exists to show the carpenter, mason, and joiner models of the different articles he may be afterwards called upon to construct, as exists for teaching the sculptor and painter. If the latter are allowed to study from good models, they become better artists; and if the youth of the building trades, during their early apprenticeship, can be ushered into museums or studios, where they can see models of roofs, staircases, domes, columns, and their entablatures, worked to scale, their understandings will be enlarged, and their power of imitation will be more rapidly and easily developed, consequently they will become more enlightened and skilful workmen. But they themselves must work: merely looking about is of no use.

Whatever tends to give the workman a more intimate knowledge of his business, tends to make him a more independent and valuable member of society. Thus we see in the present Workmen's Exhibition a valuable auxiliary in imparting practical instruction, and forwarding the technical education of our artisans.

WASTE OF PUBLIC MONEY.

Some one in authority ought yet to be hung for robbing the nation in the course of the Abyssinian expedition. The story told by the Commons' Committee, and more especially by the chairman of that Committee, in a rejected report, is a foul and degrading one. It causes us as much shame as anger. The wonder is, considering the amount of fraud and incompetence which prevailed, that a successful result was obtained. We should care nothing about the amount spent, if it had been needed to effect what was desired. Our indignation is caused by the fact that half the amount was wasted by stupidity, or abstracted by cupidity. Mules were bought at recklessly high prices, and sacrificed for want of care; some 29,000, at a cost of at least 40*l*. a piece, being either destroyed or abandoned. A contract for camels was made after the fall of Magdala was known to the purchasing officers. Enormous quantities of forage were sent over sea that not merely were not used, but, under the circumstances, never could have been. Thousands and thousands of pounds were paid to get rid of contracts that had been made unnecessarily. Three hospital ships were despatched from England, though the Bombay Government only asked for one; their hire exceeded 136,000*l*. The chairman of the Committee says it would not appear to be a violent inference that at least one million of money was expended on tonnage more than the necessities of the expedition justified. For a few months' hire vessels obtained payment to the extent, in some cases, of four times their market value. The *Continental*, an old sailing ship of 1,464 tons, without any character, and whose value was therefore not more than 4*l*. per ton, or say 6,000*l*., was chartered at 1*l*. 14*s*. per ton per month, and received for 9½ months' hire 24,000*l*., or four times her value. It may also be mentioned that the three hospital ships, which cost for freight 135,123*l*., were sold on their return for 50,000*l*. Thousands were paid for vessels that were chartered and never used, and hundreds of thousands to vessels left lying at anchor doing nothing, while other ships were being engaged.

The account of the manner in which the railway was bungled, as condensed by the *Times*, is almost past belief. Surely the matter will not be allowed to rest here. What would become of the nation under this system if we were dragged into war with any great power? As a matter of course, no risk should be run in providing for a campaign, precautions of every kind should be taken, the supplies should be on the most ample scale; but to allow again such an amount of jobbery and robbery as the reports make evident with reference to the Abyssinian campaign, would be a disgrace to the Government under which it was permitted.

A NEW FORT OFF PLYMOUTH.

The fortifications which enclose the Three Towns are nearly finished. Seaward, a fort which is in course of construction upon an artificial island of stone immediately within, but detached from, the centre of the Breakwater has been delayed. A plan, however, has been definitively settled, and the works are proceeding.

The Breakwater Fort, according to the *Western Morning News*, will be the strongest and most important structure of the kind in existence. It will be the key to the defences in the Sound. Lying low itself, it will command the whole of the waters on all sides, and will co-operate, as regards the entrances to the roadstead, with the battery at Picklecombe on the one hand, and that at Bovisand on the other. "The whole of the outer face of the masonry of the substructure is of finely-wrought granite blocks. In its upper portion, which is of brick, are placed the magazines, shot and shell stores, &c., above the water level, but protected from an enemy's fire

by upwards of 18 ft. of solid masonry. To a casual visitor these magazines and stores, which are approached by two staircases, one at each end of the fort, present a bewildering maze of chambers and passages. In reality, however, their plan is as simple as it is effective. There is first a central group of chambers; then a passage running round them; then a ring of chambers; and, finally, another passage exterior to them. The gun-floor will contain eighteen guns of heavy calibre, will be protected by 3 ft. of armour, and will be covered by a shell-proof concrete roof, 4 ft. in thickness, resting upon iron girders. The armouring is now being fixed in its place. It consists, first, of a series of vertical iron bars filled in with teak; then a layer of horizontal bars; then 2 in. of iron concrete—iron filings and asphalte; then of another layer of vertical bars; and, lastly, of the outer plates, which are of extremely massive character. At each end, immediately above the two staircases, there will be a couple of turrets, armed with the heaviest guns in existence—600-pounders, or even larger should they be invented.

All this sounds very well. Let us hope the work is being done well. Some of the forts forming part of the fortifications here, which we examined a year or two ago, were faulty in both design and execution, and would be worse than useless under certain circumstances. One or two of them, indeed, if we remember rightly, shortly afterwards collapsed. We trust a better system of things is now in operation. Who are the responsible supervisors?

THE WOUNDED IN WAR.

The admonitions of the *Builder* as to "open-air treatment" of wounded and sick at the seat of war, widely repeated both at home and abroad, have not been without their uses, as this paragraph will show:—

"Seven hundred soldiers, wounded in the combat of Borny, arrived on Sunday night at the Eastern Station, in Paris. Instead of occupying closed compartments, the men were distributed on beds of straw made up in the goods wagons, exposed to the open air. This mode of transport is recommended by the medical men in favourable weather."

The Germans are also said to be treating their wounded and sick men in temporary shed hospitals.

Some of the war correspondents complain of the surface-filth in the French camps, as also of neglect in the French in not removing their wounded from the field. Cleanliness and humanity in war are not more necessary than they are profitable. That army which has its sanitary and hospital arrangements best ordered and carried out will fight best and endure longest. Neglect of the wounded is a remnant of the worst sample of barbarism. War, under any aspect is horrible; care for the wounded alone redeems it from mere savage brutality.

BENEFIT BUILDING SOCIETIES.

A "slaughter of the innocents" occurs towards the close of every session of Parliament, and the session recently concluded has not been an exception to the rule as regards the performance of this unsatisfactory act in the legislative drama. Many of the victims will have, doubtless, their respective circles of mourners. There was one unfortunate that departed, it may be believed, "universally regretted" by all who were acquainted with the promising little hopeful; we refer to the Benefit Building Societies Bill, which was introduced early in the session under the sponsorship of Mr. Alderman Gourlay, one of the members for Sunderland, Sir Roundell Palmer, Mr. Stevenson, member for South Shields, and Mr. M'Cullagh Torrens, one of the members for Finsbury. It was just such a measure as such a Government as that now in office might have been expected to regard with favour, and the conversion of which into an Act they would have been ready to facilitate. Party questions may now be said to be disposed of, and Government has occupied itself worthily in somewhat of the character of an Imperial Social Science and Law Reform Association, armed with plenary powers. The Bill had not an iota of the party element in it; the defects alleged, rightly or wrongly, to attach to friendly societies, or some of them, and the difficulties that encompass the question of trade unions, and the legal protection of their funds, were entirely absent in this case. The passing of the Bill would have conferred a great boon upon many thousands of the provident, well-doing classes of the community, who have the strongest possible claim to legislative facilities, when these can be given without cost to other portions of the community, for the safe and efficient administration of their affairs; and to enable them to carry into effect, without legal encumbrances and hindrances, their highly laudable objects. The Bill was drawn at the instance of representatives of a large number of building societies in all parts of the country, and its real was strictly in accord with its professed purpose, "to consolidate and amend the laws relating to Benefit Building Societies." The promoters of the Bill deferred, not from luke-warmness or indifference, from pressing it forward to the inconvenience of the Government. When the time came for them to demand attention, the reward they received for their accommodating spirit was to be told that they were too late. There was only one petition, signed by one person, against the Bill, but on the motion of Sir M. H. Beach, it was shelved after it had passed through the committee in the Commons, and been amended.

The Bill provided for registration of rules, and of all alterations in them; the enrolment of societies; the publication of accounts; security to be given by officers; security for, and recovery of debts and property; directed how actions by or against trustees should be conducted; that disputes should be determined by arbitration; how the Court might order compliance with the decision of arbitrators, the order of the Court to be final; with numerous other useful and reasonable provisions, for the safe, speedy, simple, just, and efficacious transaction of business. Mr. Gourlay has given notice of motion to re-introduce this Bill in next session, when it is to be hoped the promoters will not be so diffident in pressing it forward to a consummation.

Mr. Dodds has given notice of motion for next session for a select committee to inquire into the Benefit Building Societies' Acts, and to consider any, and what, amendments are required therein.

BRISTOL; ITS SEWERS, SANITARY REGULATIONS, AND ITS DEATH-RATE.

Some twelve months since Dr. Budd wrote up the excellence of the sanitary arrangements carried out in Bristol, and the *Times*, by publishing the articles, gave notoriety to them. Bristol was said to be the best regulated town in Great Britain. Disease was detected at its commencement, and was then stamped out. Since this statement the Registrar-General's Returns have almost invariably shown Bristol to be one of the most unhealthy towns in the kingdom. Bristol stands on steep gradients, the main sewers have rapid fall, and discharge the sewage into the river, and houses are connected directly with the sewers. At low water the sewer-mouths are open, so that any wind there may be can drive in. *And the main sewers are without adequate ventilation.* All this summer the river through the city has been foul with sewage, and the state of sewers and drains is so bad, that the *Bristol Times*, as quoted in the *Builder* (20th inst.), designates the beautiful city "a whited sepulchre." Will the local surveyor see to the closing the mouths of all open sewers, and provide abundant and free ventilation, especially at the upper ends of all sewers? remembering that otherwise sewers and drains are flues for foul gases to enter the houses. Intercept the sewage, take it to land, and let it be used in irrigation, and Bristol will then be both improved and benefitted.

TORQUAY NEW HARBOUR.

Sir Lawrence Palk, M.P., has been supplementing good work done at Torquay by his father, by constructing an outer harbour; and this is now so near completion that an entertainment was given to Sir Lawrence last week, in recognition of his liberality and public spirit. The provisional order for the construction of the harbour was obtained about three years ago. Plans were prepared by Mr. Margary, engineer; the contract was taken by Mr. Mountstephen; and the works have now been nearly completed, at a cost of 30,000*l*. The old basin, still in use, is six acres in extent; the new one is ten acres. It is enclosed by a pier of massive masonry, which runs out 650 ft. from under what was once the Beacon Hill, and has a cant at the outer end. The pier is built of limestone and concrete, some of the blocks of the latter exceeding 20 tons in weight; and is sheltered seaward by a stout parapet. There is a minimum depth of water in the harbour of 18 ft., at the lowest spring tide. Adjoining the quay is an extensive range of stores, designed by Mr. Rowell, architect, and so constructed as not in any way to block the view from the road behind; whilst the roof of the upper range is made to form a promenade. This is in partial substitution for the open public space which formerly existed on the Beacon Hill, and which has been removed to make room for large assembly rooms, erected by Sir Lawrence, in connection with the baths, also from the designs of Mr. Rowell. The principal room will be a handsome apartment, when finished.

THE CHELTENHAM SEWAGE FARM.

In our last we briefly mentioned the approach to completion of these works by the town of Cheltenham. Indeed, as far as the extension of all the outfall sewers, they are now finished, so that all the fluid, after the solid sewage has been arrested in the tanks, is carried on and applied to land which the commissioners have purchased, and to other suitable land in the vicinity, thereby removing a great nuisance which has long existed in regard to the pollution of the two streams which form the natural outfall for the drainage, as the water now flows into them after passing over and through the land in a comparatively pure and very satisfactory state.

There is still a good deal to be done in regard to the land, but the effect has hitherto been extremely good, and those concerned feel reason to believe that the ultimate result will be most successful.

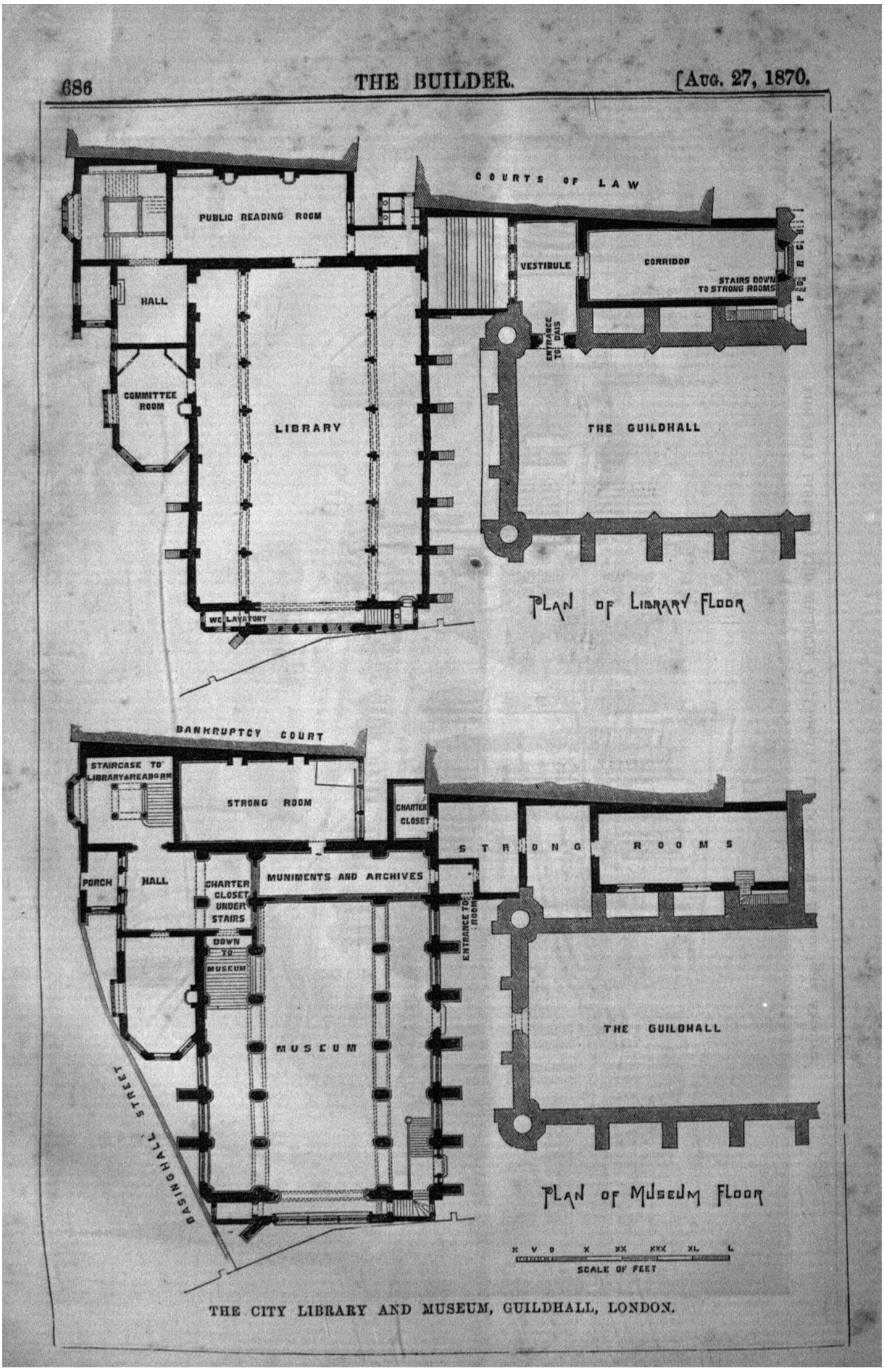
The whole of the works were arranged by the borough surveyor, Mr. Humphris, and Mr. W. Smith has acted as clerk of the works from the commencement.

We shall look anxiously for the results of the system adopted.

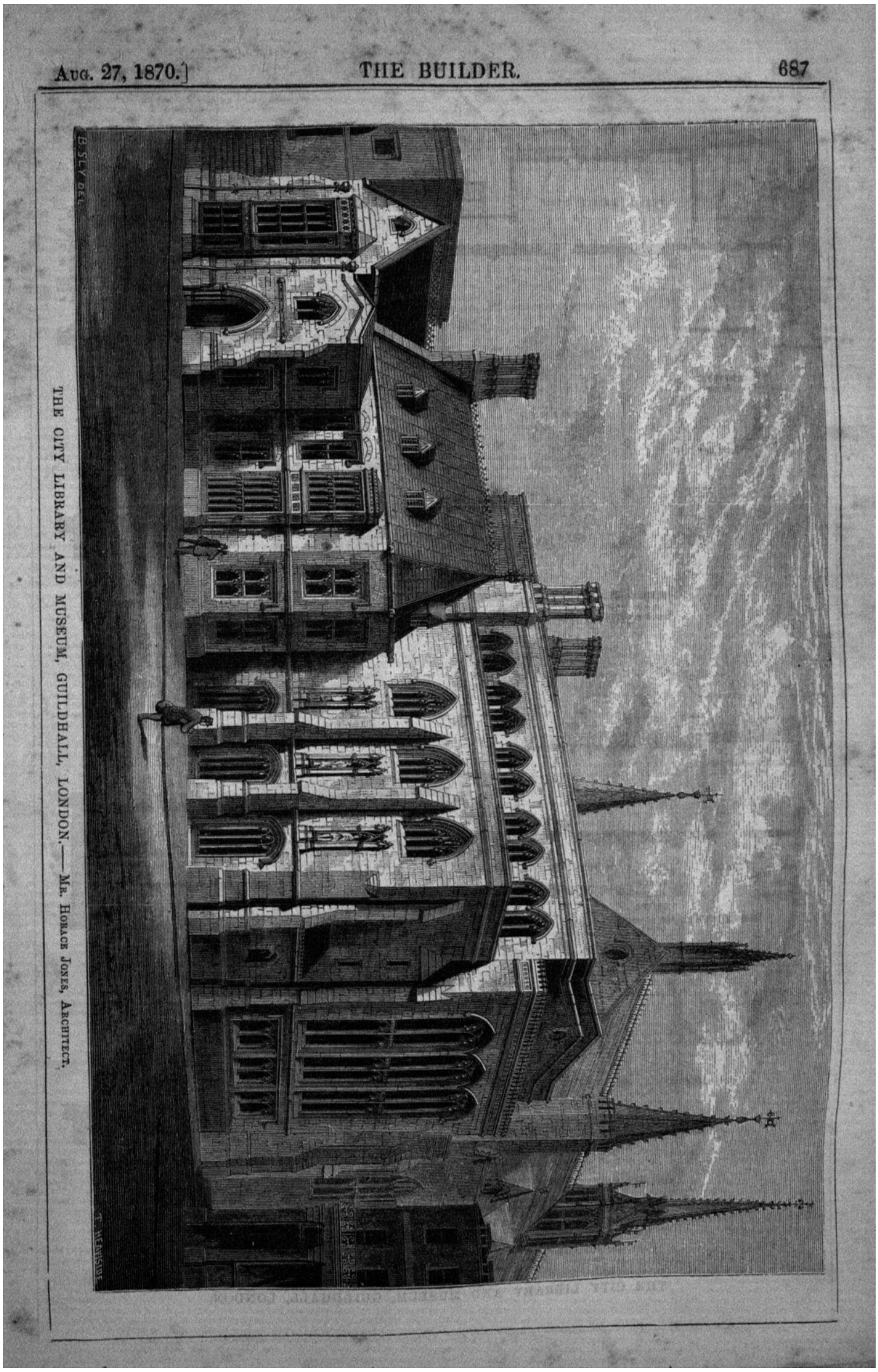
LIBRARY AND MUSEUM OF THE CORPORATION OF LONDON.

The foundations of the new Museum and Library adjoining Guildhall, and with the entrance front in Basinghall-street, next the Bankruptcy Court, are completed to the damp-proof course throughout, and the work above is commenced. The Corporation has long been urged to provide a proper and accessible build ng for their very valuable library and museum, but it was not till quite recently that circumstances served for the fulfilment of this wish. An appropriate and convenient site adjoining the Guildhall being obtained, the city architect, Mr. Horace Jones, was instructed to prepare a design, and a contract to complete the building in accordance with it, for 21,360*l*., was entered into by the Messrs. Trollope. The public are much indebted for this result to the energy and persistence with which the chairman of the Library and Museum Committee, Dr. W. Sedgwick Saunders, has followed up the subject.

We give a view of the building as it will appear in Basinghall-street, together with plans of the two floors. The style is Gothic, to accord with the Guildhall, and the external facing stone. The museum, on the lower floor, ranging with the Guildhall crypt, will be 83 ft. 2 in. long and 64 ft. 4 in. wide; the library above it will be 98 ft. long, and about the same width as the museum: the height will be 45 ft., the roof of oak. Adjoining the library are a public reading-room, 50 ft. long, and a commodious committee-room. A flight of stairs leads from the library to a vestibule opening on the dais in Guildhall, and which is approached also by a corridor 54 ft. 6 in. by 20 ft. 6 in., opening into the existing porch of the hall in Guildhall-yard. These arrangements, it is evident, will materially increase the accommodation and facilities for great entertainments or receptions. We should have mentioned that below the corridor, and extending to the library staircase in Basinghall-street, is a range of strong rooms and apartments for muniments and archives. There is every reason to expect that the new library and museum will reflect great credit on the Corporation and all concerned in the erection of them.



THE CITY LIBRARY AND MUSEUM, GUILDHALL, LONDON.



THE CITY LIBRARY AND MUSEUM, GUILDHALL, LONDON.—Mr. Horace Jones, Architect.

THE CHURCH OF ST. OUEN, JERSEY, AND ITS RESTORATION.

I venture to think that a few notes on the restoration of the Church of St. Ouen, Jersey, and of its re-consecration by the Bishop of Winchester, on Friday, the 5th of August, may prove interesting to some of your readers, as an evidence of the rapid growth of church feeling in the island within the last few years.

The church of St. Ouen is an interesting example of a type of church peculiar, I believe, to the Channel Islands, and consists of a nave and chancel, both having aisles, with central tower, and low square spire, forming together, before the prolongation of the chancel eastwards, in the restoration, a parallelogram of about 96 ft. by 53 ft., roughly speaking. The date of its original consecration is 1133, and it probably then consisted only of nave, chancel, and transepts, the aisles being added at a subsequent period.

The church is vaulted in a manner peculiar, I believe, to these churches. The vaults are perfectly plain, in the form of an acutely pointed arch of rubble masonry, springing from the walls, without the intervention of a cornice, and strengthened internally by flat bands of masonry. The vaults are generally of the roughest and rudest description, and invariably plastered. Externally, the masonry is formed to a regular slope, and the tiling laid directly upon it, without any timber work whatever. The lateral thrust of such a vault would naturally be great; accordingly the walls are built of great thickness, and are very heavily buttressed. When the aisles came to be added subsequently, the columns and arches necessarily had to be built of a corresponding thickness to sustain the weight of the wall above: the result is, that the columns and arches, at first sight, on account of their being so thick and squat, have all the appearance of being Norman or Transitional work, did not an examination of their mouldings prove them to be the work of the Flamboyant period. All the masonry of these churches is of granite, with little exception.

This church of St. Ouen is remarkable, internally, for a very curious staircase of masonry, leading to the central tower, to which it is the only access. I believe there is only one similar example known.

The windows consist principally of single lancet openings, nearly 3 ft. in width, but there were remains, on the south side of the church, of two-light windows, with Flamboyant tracery, long since destroyed.

About five years ago the building had fallen into a very miserable plight, both externally and internally. The tracery of the windows, as first mentioned, had been cut away. The west end of the south aisle was blocked out from the rest of the church, and used as the receptacle for the parish gun, and the interior was crowded with "pens," of the most miserable description, jumbled together without the least regard to ecclesiastical arrangement or decency, the altar table being placed in the centre of the church, all the pews eastward being arranged facing west, and one pew placed against the east wall itself.

The rector, the Rev. George Clement, had long wished to see this state of things at an end, and an appeal to the parish resulted in a meeting being called on the subject; and matters gradually progressed so far, that the professional services of Mr. John Hayward, of Exeter, who has carried out several works of more or less importance in the island, were called in. He made a careful survey of the building, and his plans for the restoration of the church have been carried out, little by little, until the work has been brought at last to a satisfactory conclusion.

Briefly, what has been done is as follows:—The wretched modern porch at the west end of the nave has been removed, and the two ancient doorways at the west end of the north and south aisles are restored to their original uses; the part of the south aisle formerly occupied by the parish gun, is thrown into the church; the two hideous galleries have disappeared; new windows of Early character have taken the place of modern disfigurement at the west end of the nave; and the Flamboyant tracery is restored to the windows on the south side of the church; the chancel has been new vaulted throughout, and extended eastward 8 ft.; a modern excrescence, called the south porch, has given place to one in harmony with the building; the tower, piers, and arches restored, and partially rebuilt; new granite copings and crosses placed on all the gables, the roofs re-tiled throughout, and the vaults and walls re-plastered; the curious internal staircase has also been carefully restored. The seating is entirely new, that of the nave and aisles being of red deal, stained and varnished, and that of the chancel of oak, of somewhat elaborate design; a new pavement of tiles, supplied by Mr. Godwin of Lugwardine, Herefordshire, has been laid down throughout the church, that of the chancel being of rich and varied design; and steps of Devonshire marble have been placed in the sacrarium. The windows, with few exceptions, are filled with stained glass, principally the work of Messrs. Hardman & Co., and are exceedingly good, both in design and colour; two windows, by Messrs. Lavers & Barraud, are equally good; but the same, unfortunately, cannot be said for the east window, the work of a French firm, at Le Mans, which contrasts very unfavourably with the others. These windows are all gifts to the church. The pulpit, the gift of two unknown ladies, is executed in Caen stone, by Mr. Boulton, of Cheltenham, from the architect's drawings. The upper portion is circular on plan, springing from the octagon, and is divided into a series of panels by moulded arches, supported on marble columns, with carved capitals. The panels, which have diapered backgrounds, are filled with statuettes of the four Evangelists, and St. Paul, St. Peter, St. James, and St. Jude, comprising the several writers of the New Testament The cornice is carved, and is surmounted with a capping of alabaster, the same material being employed for the capping of the open balustrade on each side of the stone steps, which is supported by marble columns. The pulpit rests on an octagonal base of polished red granite, worked in the island. The font, also a gift, is of grey granite, of bold design.

The church will be warmed in winter by the apparatus of Messrs. Haden, of Trowbridge, and lighted at night by paraffine lamps of ornamental design. The organ, placed in the north chancel aisle, is built by Mr. Robson, of London, and is an instrument of considerable power. The case was designed by the architect. The lectern is in the form of an eagle, carved in oak by a native artist.

The general contractor for the work was Mr. Le Sueur, of St. Helier's, but the chancel fittings have been executed by Mr. Blamfield, also of St. Helier's; and the altar-rail, parclose screens, &c., are the work of Messrs. Hart & Co., of London. The execution of the work generally reflects credit on all concerned. The total cost of the restoration will be between 4,300*l.* and 4,500*l.*

Friday, the 5th of August, was the day fixed by the bishop for the re-consecration of the church, this ceremony being rendered necessary in his opinion by the extension of the chancel eastwards. The weather was all that could be wished, and the church was filled long before the appointed hour.

At the conclusion of the service, the bishop, and a large number of the clergy and laity were entertained at luncheon in the school-room by the rector, the Rev. George Clement, to whose unwearied exertions the accomplishment of this great work has been mainly owing. The day will long be remembered by those present with peculiar satisfaction, as commemorating the first instance in the island of the restoration of an ancient church carried out fully and completely.

There can be little doubt that what has been accomplished here will, under God's blessing, do much to improve the state of Church feeling in the island generally, and to pave the way for a similar work in other churches, many of which, fully as interesting as St. Ouen's, have fallen into a sad state of neglect and decay; and the presence of their bishop in the islands, who seems to have won all hearts, during this, his first visit among them, cannot fail of bearing good fruit.

H. B. P.

THE WELLINGTON MONUMENT.

Sir,—In order fully to understand the merits of a case it is generally necessary to begin at the beginning. So far as I know, this has not yet been done in the matter of the Wellington Monument.

The original cause of the delay in the completion of the monument, and of the present money difficulty, is to be found in the award of prizes at the competition of sculptors. This will appear if the history of the work be followed out.

Of all the models sent in, that of Mr. Stevens was the only one which showed such a knowledge of architecture and ornament, united with what is looked upon as purely sculptor's work, as to make it fit for the site chosen in St. Paul's Cathedral. This, I believe, is generally admitted; and, at any rate, the judges knew that a "*pervious*" monument was alone fitted for the site, and that Mr. Stevens's design was the only one answering to that character. Upon what principle the prizes were awarded I do not know. It ought obviously to have been upon that of giving the first prize to the work best suited to the place for which it was designed; and, as every competitor knew where his work was intended to stand, this would have been perfectly fair to all. This principle, however, was not adopted. The bad effects of the first mistake were soon apparent. The first and second prize-holders were commissioned to execute bas-reliefs, simply because they were first and second prize-holders, *and they were paid out of the* 20,000*l. intended for the monument itself*, and to which sum all the designs were originally made.

Thus Mr. Stephens was placed in a false position at the very commencement of his labours; and, as if it were not enough to cut down the price to be paid him, he was also required to erect a full-sized model of the monument, a proceeding both unusual and unnecessary, and which added greatly to his expenses, compelling him to prepare and study expressly for it. That, under these circumstances, Mr. Stevens should have had to take other commissions, is not wonderful. He certainly might have refused the work altogether, but whether he would have been justified in doing so let artists judge. It now remains to be seen whether the country will allow Mr. Stevens to complete the national work at his own cost. If it does, I can only say that it deserves neither the work nor the artist.

G. C. E.

ROADMAKING IN THE METROPOLIS.

A report has been made to the vestry of St. Giles's, Camberwell, by their General Purposes Committee, in which are embodied the results of numerous inquiries on the subject of paving and road-making throughout the leading towns in England and Scotland. With few exceptions it appears that the footways are paved with York or other flag paving. In some cases special kinds of pavement are adopted from the circumstance that the material is to be obtained near at hand. Attention has in many districts been directed to several kinds of composite paving or asphalte, for roads as well as footpaths. Bricks also are specially made for the purpose, and wood has been extensively used for pavements and roadways.

The committee thought it would be advisable to take the material in the parish. Their further recommendations were:—That experiments be made with paving bricks for pathways; that where the leading pathways are wider than 6 ft. (and such as in their opinion from the traffic should be paved with York flags), in such cases the remaining portion of the pathways should be made up with one of the description of asphalte or tar paving; that paving works be done to the extent of 25,000*l.* or 30,000*l.*; that they be at once empowered to contract for paving works to the extent of 2,000*l.* in York flagging, and 1,000*l.* in tar paving or asphalte; and that North-terrace, Camberwell High-road, be paved at once with a 6 ft. course of 2½-inch York flagging, and the remaining portion of the pathway with tar paving. The surveyor, whose opinion is attached, thinks there are many local streets in which the several kinds of asphalte and tar paving could be used with advantage.

On the subject of the use of steam-rollers in repairing roads, the surveyor reported to the committee that he was of opinion that the heavy rollers used crushed and wasted the material, and until further experiments had been made he would not recommend the adoption of the steam-roller. A five-ton horse-roller, at a cost of 90*l.*, he thought would be useful. The committee resolved to recommend the purchase of this, asking, however, for power to purchase a steam-roller divided into three five-ton portions, thus reducing the crushing power to which the surveyor had directed their attention, should they deem it advisable. It must be remembered that a heavy one has been in use for some time in Islington, and has at last been purchased by the vestry, and that its results are remarkably satisfactory. The vestry of St. Marylebone has also deserted the horse-roller, and is experimenting with the steam-power.

A Steam Road Rolling Company is announced, with a capital of 5,000*l.*, in shares of 1*l.* each. In a prospectus we are informed that for road maintenance the average of seven estimates shows a reduction over the present system of fully 40 per cent., whilst the saving to the public in wear and tear of horses, vehicles, and harness cannot well be estimated. The system has already been adopted in Liverpool, Sheffield, the London Parks, and Paris, a six years' contract having been lately entered into in the last city at one-half the price formerly paid for horse-rolling. It is estimated that there are upwards of 1,100 miles of unpaved highways in the metropolitan districts alone, and the company propose to take a license for the use of the patent steam road-rolling engines of Messrs. Aveling & Porter and Messrs. Batho & Clark, for which it is believed that remunerative employment can always be found.

Those who take an interest in the subject may advantageously study the report by Mr. Paget, C.E., recently alluded to by us as having been published by order of the Metropolitan Board of Works, on "Steam Road-rolling, with special reference to the Metropolis."

RECLAMATION OF WASTE LAND.

The *Gardeners' Magazine* gives a help to this our pet project:—

From the known we argue to the unknown. This generation has seen enough of the reclamation of land to be well assured that a surface alone is wanted to form the foundation of an agrarian enterprise, that needs only prudent management to make ample returns on the capital necessarily invested in it. We repeat that it is not in the first instance a question of good soil or bad soil, or no soil at all. The better the soil, the better the prospect of success certainly; but, to begin with, a surface is enough, and, that there may be no mistake about our meaning, we will point to Dartmoor as offering surface only, and yet being well adapted to become cultivable land, and in due time make fair returns upon the outlay its conversion would involve. Whittlesea Mere affords one of the finest examples of reclamation in our time. Where the melancholy marshes spread far and wide, feeding only the wild duck and the bittern, magnificent crops of grass, corn, and roots are now annually raised upon the jet-black vegetable soil. This was a good case, and a question of engineering rather than of experiment in agriculture. But take a bad case, that of Salisbury Plain, which has been pronounced again and again by "competent authorities" utterly unfit for any purpose except the pasturage of sheep. Traverse the plain any time between midsummer and October, and see how the "competent authorities" were slightly wanting in prophetic insight. See a piece here and a piece there under the plough, and on these pieces turnips as good as ever were raised on what may be called a second-class soil. Barley, oats, and rye have been grown upon the plain, and on some of the older fields that have had the frequent aid of artificial manures we shall yet see wheat, and the homely scenes that accompany wheat on the land, as homely comforts accompany bread in the household. "The wilderness and the solitary place shall be glad; it shall blossom abundantly, and rejoice even with joy and singing."

OPENING OF A CO-OPERATIVE HALL AT BUXTON.

The new stores of the Buxton Co-operative Society have been opened. According to a report which was read at the opening, the society was formed in January, 1866, by about twenty-two persons. Every obstacle was at first put in their way, and they frequently had to meet in the open air. None of the property owners would let them have a shop for love or money, and at last they gladly accepted a cellar offered to them by one of the members. They now commenced to deal in flour, their capital at this time being about 23*l.*, and more than two tons at a time could not be bought to advantage. Cash had to be paid before the goods were delivered. At the end of 1866, the members only numbered twenty-five, with a capital of 48*l.* In 1867, the old stores in Concert-place were taken by two members, as sufficient confidence was not felt in the general body to let them the premises in the society's name. At the end of that year the members had increased to ninety-three, with a capital of about 300*l.*, doing a business of 40*l.* a week. From this time rapid progress was made, and in the spring of last year it was decided to erect the present building, from plans prepared by Mr. Wm. Newby, of Manchester. The contract was taken by Mr. John Barker, of Burbage, for 1,314*l.* The site is freehold, purchased from the Duke of Devonshire, and contains 500 yards. The cellars, four in number, with the bakehouse, contain an area of about 1,540 ft. The oven is fitted up with Tomlinson's patent apparatus, and bakes twenty stones at one time. On the ground-floor is a shop, 28 ft. square inside, bounded on one side by a house for the shopman; and on the other by a covered archway, and the staircase to the storerooms and office on the first-floor, and to the large room and ante-room on the second-floor. The large room is 46 ft. long by 29 ft. wide, 17 ft. high, and will seat 400 persons. In the ante-room is a fifty-gallon boiler, with water oven. In addition to the contract the fittings have cost 160*l.* Since the removal to the new premises the society's trade has increased upwards of 50 per cent., with every prospect of soon being double. The members also keep increasing, the number now being 205, holding a share capital of upwards of 1,070*l.*, with a reserve fund of 39*l.*, and 15*l.* of an additional fund, towards establishing a reading-room and library. Up to the present time the society has sold goods to the amount of 9,700*l.*, and realised a net profit of more than 600*l.*, after paying all expenses, thus reproducing about two-thirds of the members' capital.

SOUTH-EASTERN RAILWAY: WORKMEN'S TRAINS.

Some time since the South-Eastern Company, of their own motion, put on workmen's trains by which return tickets were issued between Woolwich and any of the London stations, London Bridge, Cannon-street, or Charing-cross, at fares of 4d. for the twenty-two miles. It has been found that about 25 per cent. of those using the trains belong to classes for which they are not intended; and, irrespective of the class of passengers using them, it has been found that these trains do not pay. In relation to compensation in cases of accident to passengers by these trains, in the Acts of the Metropolitan, North London, Great Eastern, London, Chatham, and Dover, and Metropolitan District Companies, the compensation to passengers by workmen's trains is limited to 100*l.* The South-Eastern Company reasonably requested Parliament in their Bill, which passed the late session, to grant them a like limitation, but their request was, for what reason we know not, not complied with. The subject was discussed at the half-yearly meeting of the company held on Thursday, at noon, in the Cannon-street Hotel. Sir Edward W. Watkin, chairman of the company, expressed himself strongly in favour of the continuance of the workmen's trains; but the feeling of the proprietors appeared unanimous against the conveyance of large numbers of passengers at such a very low fare, and with unlimited liability. The matter was left in the hands of the Board, and it may be hoped that the many persons interested may approach the Board of Trade with such a representation as may induce them to grant the South-Eastern Company the comparative indemnity granted to other companies, in the matter of compensation, and thus prevent the trains from being taken off, as they may and probably will be, their continuance being optional on the part of the company.

Sir Edward stated that they had been accused of sending large quantities of contraband of war to the Continent since war had been declared. He did not know that they had done so. They had sent medical stores freely over their line, and had had one offer, before the war was declared, to convey a large quantity of arms. They had intentionally quoted so high a rate that the consignment was not sent over their line. Recently the authorities of Scotland-yard had been instructed by the Home-Office to communicate with them (the South-Eastern Company), respecting a number of very heavy wooden cases labelled "books," which had been sent down the line *en route* for the Continent. The packages were suspected to contain arms, not books. These packages were detained and examined, and found to contain Bibles, not breech-loaders, on their way for distribution in the belligerent armies.

The receipts of the South-Eastern have been less for the last half-year, as compared with the last corresponding half-year, by 2,717*l.*; but the working expenses, without starving the line, have been less by 13,263*l.*, which leaves an increased net profit of 10,546*l.*

A dividend of 3½ per cent. upon ordinary stock has been earned, but it was deemed prudent to declare a dividend at the rate of 2½ per cent. per annum, after providing for loan and preferred stock, and to carry over a balance of 22,996*l.* to the current half-year.

The meeting, which was of a most harmonious character, was concluded by a vote of thanks to Sir Edward Watkin.

COLOUR AND ARCHITECTURE.

Sir,—I have only just seen Mr. Sharpe's letter on "Colour and Architecture" in the *Builder* of the 6th inst. Since my name is mentioned in it, I feel sure that you will allow me to say a few words in reply.

There is much in Mr. Sharpe's letter which will receive a very general assent. No doubt some of the attempts to apply coloured decoration to our churches deserve the epithets "crude and gaudy" which he applies to them: no doubt colour ought not to interfere with architectural form:—and so forth. But when he argues from the abuse against the use of colour in architecture, very few, I apprehend, will follow him. Mr. Sharpe, I feel sure, will readily admit that traces of coeval colour are so very often found in our church restorations that we may safely say that colour was commonly—if not universally—used by the Gothic architects in their churches. I think he will also admit that the men who had sufficient knowledge of the principles of art to produce the "glorious architectural effects," which he so justly eulogises, were little likely to injure those effects by an injudicious application of colour to them. If our modern attempts to colour Gothic churches are not very successful, is it not more likely that it is because we have not yet learnt how to do it, than because it cannot be done?

The use of stained glass windows was part of the ancient system of coloured decoration; we have learnt (after some initiatory failures) how to make and use stained glass as the old architects did, and we now apply it with excellent effect. We are going on to the use of wall-painting, and at present, perhaps, we are in the stage of initiatory failures; but I for one do not doubt that we shall before long achieve equally successful results in this mode of decoration also.

That this success is to be attained by copying old examples I do not say. Some of the fragmentary examples of Mediæval colouring which remain are very perplexing—to me at least; and seem equally to deserve the epithets which Mr. Sharpe bestows on their modern reproductions. It is difficult—to me at least—to imagine how the coloured decoration of a building in which some of these fragments formed a portion could ever have produced a satisfactory effect. But knowing how skilful the old artists were—as their stained glass is enough to prove—in the use of colour, I humbly attribute my difficulty in appreciating these ancient examples of wall-painting entirely to the fragmentary nature of the examples, and to my ignorance of the principles on which the artist worked, and of the design of which this is a portion. I have never advocated the imitation of these ancient fragments; I have, on the contrary, frequently deprecated their restoration or reproduction; but I think that to understand the principles on which the Gothic artists coloured their buildings, is our first step towards a satisfactory revival of the practice.

What I have maintained, and still maintain, is, that every great school of architecture,—Egyptian, Assyrian, Greek, Roman, Byzantine, Gothic,—used decorative colour (and historical painting and sculpture besides) to heighten the effect of its great buildings; and that our modern public buildings are crude, incomplete, and unsatisfactory to the eye and mind, without these aids from the sister arts. What I have advocated, and still advocate, is, that our architects and painters should turn their attention to the subject, and rediscover and establish the principles on which the architect, the sculptor, and the painter ought to combine their work into a grand and harmonious whole.

I rejoice greatly that in St. Paul's Cathedral, at length, the sculptor and painter are to be called in to complete the noble work of which our great architect did his part so long ago. The little which has been already done is enough to

show what a wonderful transformation may be effected in that cold and dingy interior. I rejoice in the anticipation that the decoration of St. Paul's will spread, almost universally, the "fashion" of completing our public buildings, and at the same time create a school of artists capable of doing it worthily.

EDWARD L. CUTTS.

RESTORATION: BURY ST. EDMUNDS.

SIR,—Your correspondent "B. B." claims that St. James's Church, Bury St. Edmunds, is "a fair example of the style" to which it belongs; exactly what I inferred,—a fair example of a style in which detail (of mouldings, &c.) is in general flat, tame, and comparatively ineffective. He is right in preferring the arcade to that of St. Mary's Church adjoining, the plan of the piers in which is exceptionally bad, so much so that, in the absence of documentary evidence, I should question it being earlier than St. James's. As to the new roof over the latter, in the first place, a double hammer-beam roof is about the "heaviest" roof in appearance that could well be devised; secondly, the roof is certainly, archæologically, earlier in style than the substructure, having the usual characteristics of a roof of about the first quarter of the fifteenth century, whereas the substructure is what we usually refer to the last quarter of the same epoch; and, thirdly, every one with an eye for architectural design (as apart from archæology) must perceive that with such a comparatively attenuated arcade, and such a narrow and lofty nave, the eye does not demand the further exaggeration of these proportions by a steep-pitched roof. This is so obvious that I cannot but give credence to a report that the eminent architect who was called in to restore this church fully intended to give it a roof in keeping with the rest of the building, but was overruled, in spite of his urgent representations, by some of those amateur ecclesiologists who manage these matters in country places, and who are as thorns in the side of the luckless architect who has to come in contact with them.

"B. B." must have oddly overlooked the drift of my letter, if he thought it necessary to point out that "a bad style may be tolerated in an old building, but can never be a fitting subject of reproduction in a new work." The whole tenor of my remarks was adverse to the restoration of even bad *parts* of a building, and therefore, *à fortiori*, of a building altogether bad. If such a building falls into decay, sweep it away, and build a better one.

A LOOKER-ON.

BRAEMAR CHURCH.

SIR,—Seeing in a recent issue of the *Builder*, under the head of "Notes from Scotland," a statement relative to Braemar Church, which gives the name of Mr. Robert Lamb, of Darlington, as the architect, I beg to inform you that Mr. Lamb is one of my assistants, and has acted in this, as in other matters, under my instructions.

JOHN ROSS.

ARCHÆOLOGICAL MEETINGS.

Cumberland and Westmoreland Antiquarian and Archæological Society.

A MEETING of the members of this society has been held in the Concert-hall at Kirkby Lonsdale. Although 150 members had been invited by circular to attend the meeting, only fourteen made their appearance. A few ladies were also present. The Rev. J. Simpson read a paper, written by the Rev. Mr. Moore, of Bewcastle, upon the Roman stations in Cumberland, and the paper was ordered to be printed among the transactions of the society. After some conversation respecting the antiquities of Kirkby Lonsdale, the Rev. H. Ware read some notes upon the parish church. Subsequently the members lunched at the Royal Hotel, where preparations had been made for about forty persons, but only about twenty partook of the repast.

Sheffield Architectural and Archæological Society.

The members of this society have made an excursion to South Wingfield Manor House, Derbyshire, to which we recently referred. They were admitted by the courtesy of the Rev. Immanuel Halton, the owner of the estate. The Rev. J. Stacye, the president of the society, read a short paper on the history of South Wingfield or Winfield, sketching the descent of the property from the days of the Domesday survey. Mary Queen of Scots resided at Wingfield for about six months in 1569, and again for a short time in 1584. Tradition says that her apartments were in a range of buildings, now wholly destroyed, standing on the west side of the inner court. It appears from Sir Ralph Sadler's papers, that there were in all 210 gentlemen, yeomen, officers, and soldiers employed in the custody of the Queen at Wingfield, in the month of November, 1584. Her domestic establishment then consisted of five gentlemen, fourteen servitors, three cooks, four boys, three gentlemen's men, six gentlewomen, two wives, ten wenches and children. "The diet of the Queen of Scots on both fishe and fleshe days is said to have been about 16 dishes at both courses, dressed after their awne manner, sometimes more or less as the provision servethe." The Queen and her train are said to have consumed about ten tuns of wine a year. Mr. Stacye described the different portions of the ruins, and the party then inspected them. The afternoon was spent in rambling about the ruins, under the guidance of Mr. Cupit, tenant of the manor farm; and before returning to Sheffield, the party partook of tea at the Peacock Inn, near the railway station.

DOLGELLY MARKET-HALL AND PUBLIC ROOMS.

THIS building, which was opened on Thursday, the 11th inst., has been erected under the superintendence of Mr. W. H. Spaull, architect, of Oswestry, on a very commodious site in the centre of the town, and covers 4,960 super. feet; it contains a general market, 60 ft. by 39 ft., with four shops, kitchen, two bed-rooms, four retiring-rooms; an assembly-room, affording accommodation for 600 persons, with raised orchestra, and a spacious reading-room. The walls are of grey granite, relieved by light limestone dressings and arches.

The contract was taken by Messrs. Humphrey Jones, Rees Owen, and Evan Morris, of Dolgelly.

The total outlay for building, stalls, chairs, gas-fittings, &c., was 2,200*l*.

VERMIN IN NEW HOUSES.

I THINK I can inform your correspondent, "R. W.," of a remedy for the disagreeable visitors of which he complains.

Some years ago a friend of mine came to a country vicarage, an old house, and found the upper rooms swarming with these insects; dozens, I might, perhaps, say hundreds of them might be scraped out from between the floor-boards. He made use of the receipt I give below, which most effectually destroyed them, and he has never been troubled with a single one in the house since. I also was troubled with several in my lodgings at the commencement of the year, but the same mixture has been entirely effectual in removing them all.

The mixture I must tell you is a *deadly poison*.

Spirits of wine, 4 oz.; spirits of turpentine, 4 oz.; white mercury, ½ oz.; camphor, ½ oz. Mix, and apply with brush to infested part.

G. I. C. C.

ST. AUGUSTINE'S CHURCH, HIGHBURY NEW PARK.

MR. HENRY RYDON, of Highbury New Park, deserves more than a word of praise for the liberality which has led him, not merely to present the site for a church, but to build it at his own sole cost, probably nine or ten thousand pounds. Moreover, as a preliminary, Mr. Rydon, some six years ago, put up a temporary iron church and hall, at an expense of nearly 3,000*l*. Some of the parties intrusted think it too much to expect Mr. Rydon to erect two churches at his sole expense within six years, and they are subscribing with the idea of at least defraying the cost of the temporary church, but that has not yet been accomplished. It is hoped that this will be done, and that the spire on the new edifice will be raised also by voluntary contributions.

St. Augustine's was consecrated, a few days ago, by the Bishop of London. It is a spacious and handsome structure of brick, with stone dressings, in the style of the fourteenth century, with the nave divided from the aisles by stone columns and arches; and it has a clearstory. The architects are Messrs. Habershon & Brock, and the contractors, Messrs. Perry & Son, of Stratford.

The organ is divided, one part being on the right, the other on the left, of the chancel; and the movements have the aid of electricity.

The Rev. Gordon Calthrop is the minister.

Mr. Rydon is the owner of most of the land round about, green fields a very few years ago, and now nearly all covered with large houses. The clay which was under the turf is now above it, in the shape of walls.

CHESTER CATHEDRAL.

In a letter to the *Times* Dean Howson says:—The architect's estimate for the complete restoration is 55,500*l*. To this some additions must be made, in consequence of our having discovered that foundations were wanting, and that parts of the walls were in a bad and perplexing condition, so that it would probably be safe to say that the whole will cost 60,000*l*. During the present year very rapid progress has been made in the work of restoration. The exterior of the tower has been entirely renewed. The uncouth structure of comparatively recent construction which used to disfigure the south side of the Lady Chapel is gone. The exterior is restored to its original form and beauty. Windows also of great beauty have been inserted here, and others of a decorated character in the clearstory of the choir. An entirely new roof, covered with lead, is being constructed for the nave; the groining of that part of the church is steadily advancing, as well as its exterior reparation at the west end and throughout the south side. The completion of the whole work may be expected to occupy three years; but, in order that we may make sure of this result, it is necessary that our subscription list should be continuously reinforced. We shall be peculiarly grateful if individual contributors, or separate families, will make themselves responsible each for some distinctive portion of the work, as, for instance, a window, a buttress, or a section of the cloister.

THE ARTIZANS' AND LABOURERS' DWELLINGS ACT.

THE Act empowering vestries and district boards to take down or improve dwellings occupied by working men and their families, which are unfit for human occupation, and for the building and maintenance of better dwellings, has been extensively carried out in the parish of St. Luke. Upwards of fifty houses have been brought under its operation, and the object of the Act successfully accomplished. There has only been one case reported in the parish wherein the owner of premises refused to comply with the orders of the vestry, and intimated his intention of appealing to the Quarter Sessions; but, on further reflection, he deemed it prudent to carry out the order, and has since converted the dwelling-houses into stables. A great deal still remains to be done in this and other eastern parishes, in many of which no action has yet been taken by the vestries or other local authorities, nor have the inhabitants resolved to put the machinery of the Act in motion, so that in these cases the Act is, in reality, inoperative.

CONDITION OF DUBLIN.

THE *Irish Builder* says:—

"The writer in the *Builder* has not yet ceased to pour out his store of censure on 'the powers that be' in our city. In his paper, in Saturday's issue, he fearlessly asserts that '*Dublin* is not half cleansed.' He names several districts in which 'corporate *vigilance* can never be detected.' Certain it is that the

'Chiel's amang us, takin' notes,'

and however shrewdly we had previously conceived such to be the case, we are confirmed in our opinion, when the writer tells us,—'We have walked through these quarters, and examined the house property, questioned the dwellers as to their wants, and, during our visit, seen sufficient with our own eyes to justify every word we have written or may write.'

"With respect to his queries as to the railings in front of Old Trinity, and the '*dead wall*' in

College-street, we are happy to inform the writer that, within the past fortnight, the works have been in progress. The blocks of Ballynocken granite for the base are on the ground; the foundations are laid about 10 ft. in. We regret that they have not been laid still nearer the frontage line of the College, and with a lesser curve towards the street."

BUILDINGS FOR EDUCATIONAL PURPOSES AND THE INTERNATIONAL EXHIBITION.

Lieut.-Col. Scott, as secretary, writes thus:

I am directed by her Majesty's Commissioners for the Exhibition of 1851, to transmit the enclosed copy of a letter which has been addressed by them to the honorary secretaries of

The Royal Institute of British Architects,
The Architectural Association,
The Architectural Exhibition, and
The Architectural Museum,

and to state that her Majesty's Commissioners will feel obliged if you will be good enough to cause it to be published in the next impression of the *Builder*.

"Sir,—I am directed by her Majesty's Commissioners for the Exhibition of 1851 to inform you that in their opinion the great interest at present felt in the question of national education, and the fact that educational works and appliances are intended to form a prominent feature of the approaching International Exhibition of 1871, seem to present a suitable occasion for the formation, at the Exhibition, of a large and important collection of models, plans, and elevations of colleges, school buildings, and other edifices designed for educational purposes.

It is therefore the intention of her Majesty's Commissioners to request the Committee of Selection for Architecture to assist them in forming such a collection, by devoting their particular attention to the designs, drawings, and models relating to school buildings which may be submitted to them, and her Majesty's Commissioners have determined to place at their disposal on this occasion, in addition to the amount of space which will be regularly set apart for architectural works at these annual exhibitions, a supplementary allotment, to be specially devoted to plans, drawings, and models of school buildings.

Nothing, then, remains but to secure the co-operation of the architectural profession in this work, and I am therefore directed to ask you to have the kindness to make known to the members of your society the views and intentions of her Majesty's Commissioners on this subject."

THE CHEESEWRING.

Sir,—The propping to which your correspondent, "H. B. W.," alludes, was done last year, by order of the Duchy authorities. It was adopted as a precaution against the danger to which the Cheesewring was exposed, through the foolish practice of rocking the upper beds attempted by many of the visitors. For any other purpose it would have been simply ridiculous.

Time will not allow us to do more at present than repeat our assertion, that the Cheesewring is not endangered by our operations; its security, as far as we are concerned, has been amply provided for.

John Freeman & Sons.

THE GREAT-HORTON FINE ART AND INDUSTRIAL EXHIBITION, BRADFORD.

The Exhibition, which has for some time been in preparation at the New Congregational School, Great Horton, has been formally opened. A large and fashionable company assembled in the large room on the first floor of the building, converted during the exhibition into a picture gallery, the Mayor of Bradford in the chair. A great many ladies of Bradford and the district were present. A choir composed of vocalists and instrumentalists, members of the Bradford Festival Choral Society and others, occupied a large portion of the platform, and opened the proceedings by singing the solo and chorus, "The Marvellous Work."

The exhibition is one of considerable extent. The building in which it is held is well adapted, in the size of its principal apartment, the number of its smaller ones, and in the possession of a long corridor, for the purposes to which it is applied. The principal departments may be described as art collections (including many subdivisions), objects of natural history, objects of vertu, and machinery. Of these departments that of art is the most important.

Vacant Land in the City.—The *City Press* points out that the corporation have at the present time upwards of 40 acres of land in the City, which is vacant and entirely unproductive. The greater part of this land is situate in the neigbourhood of the Holborn Viaduct and the New Meat Market at Smithfield; but there are several plots in much more central positions.

CHURCH-BUILDING NEWS.

Hackney.—The foundation-stone has been laid of a new church for South Hackney. It is to be called Christ Church. The edifice will occupy a space of ground between Victoria Park-road and the angle of Victoria Park. The style will be the Middle Pointed, and the church will consist of nave, side aisles, and chancel. A large window will occupy the western gable, with three-light windows in the chancel, which will be apsidal. No side windows are intended. The walls will be of brick, with stone ashlar work, and the roof open-timbered. In the chancel will be a sedilia. The entrance at the western extremity will show a lofty tower. Three descriptions of stone seem to be employed,—Portland and Bisham stone for the outside, and Bath for the internal ribbed and moulded work, &c. The tower, it is said, will be of Bisham stone; but we think, from an examination of it, it appears altogether too soft and weak for its intended purpose. With tower and spire, the contract price is put down at 4,875*l.*, and the church is to afford accommodation to about 800 people. South Hackney is at present well provided with churches. It has no less than fifteen, although thirty years ago it had but two. Of the architectural character of the churches, however, we cannot speak very highly. The present structure will be erected from the plans of Mr. Wiggington, architect.——The district church of St. Mark, which is situate in the Sandringham-road, has been consecrated by the Bishop of London. There are a vast number of empty houses in the vicinity. The structure is very large, affording accommodation for no less than 1,713 persons, exclusive of the gallery. The ten pillars supporting the edifice are painted a dull chocolate colour picked out with gold, and the bricks are painted blue, red, white, and black. All the windows are stained. The roof is of oak, varnished, and the pews are constructed of the same material. The edifice already has cost 11,000*l.*, exclusive of the site, which was given by Mr. Amhurst. When the incumbency was first offered to Mr. Pilkington, 3,800*l.* were required to pay off the builders, &c., and to render the church fit for consecration; but of that sum 2,952*l.* have been subsequently raised, and there remains at the present time a pressing want of 848*l.* to wipe off the debt. Those figures, however, did not take into account 1,500*l.* for the completion of the tower and spire, and 350*l.* for the purchase of an organ and font, and the cost of schools and parsonage, which sooner or later will have to be built, and subscriptions are earnestly solicited.

Bristol.—An adjourned vestry meeting has been held at St. George's, Easton-in-Gordano, to consider a proposition to take down and rebuild the church for that part of the parish. Since a district church has been built at Pill, it has been found much too large for the population, which numbers about 500 in the whole. It is a very plain-looking building, built on to an old tower, and has sittings for about 800. Most of the vestry people appear to have a great dislike to the pulling down of St. George's Church, as it has only been built between forty and fifty years; and they thought it would do very well for them. Still, no opposition was offered to a resolution to the effect that the church shall be rebuilt in accordance with the plans produced, if the necessary funds can be raised, and the necessary faculty is to be applied for. There is every probability, the local *Times* believes, that the church will be rebuilt in the course of the ensuing year. Plans and specifications were submitted to the meeting. The total cost is about 2,000*l.* It is proposed that the new church shall take the form of a memorial of the late vicar, the Rev. Henry Mirehouse. Altogether, about 1,000*l.* have been promised towards the sum required to rebuild the church.

Dodleston.—It is now more than a year ago since the work of restoring, or almost re-building the parish church of Dodleston was commenced. The sum required for the work was 3,000*l.*, as it was proposed to rebuild the church, with the exception of the tower. Mr. Douglas, of Abbey-square, Chester, was selected as the architect, and he has not departed widely from the features of the old church, which was in the Perpendicular Gothic style. Both the nave and the aisle have been considerably widened, and what was formerly the chapel has been utilised as an organ chamber and vestry. The whole of the tower has been restored, the upper part reconstructed and a polygonal capping or spire added. This part of the work, including the recasting of a bell, and the addition of a new one, together with a new clock, has been carried out as a memorial of the late Dean Anson. The entrance to the edifice is by means of a rather quaint half-timbered porch, on the north side, near the tower. With this exception the material used in the construction is the red sandstone from Handbridge. The roof is open over the nave and aisle, but panelled over the choir and chancel; chocolate and white in the former, and green and gold in the latter, being the predominating colours. The decorative artists who executed this work, and also the Agnus Dei and lettering on the east wall surrounding a stained-glass window, were Messrs. Heaton, Butler, & Bayne, of London. An inscription in the lower part of the window shows that it is in memory of Frederick Anson, D.D., Dean of Chester, and Rector of Dodleston, who died May 8th, 1867, aged 88 years. The Christian ministry furnished the ideal subjects for the artist, Mr. Wailes, of Newcastle. A coloured window at the opposite end, now that the tower is thrown open, would be a desirable addition. The woodwork is of varnished pitch pine, if we except the lectern, which is of oak, and the stalls and pulpit are carved. All the seats, which will accommodate 300 persons, are open, and, we presume, will be free. The passages between them are paved with red and black tiles, and the chancel with encaustic tiles. The churchyard has been extended by slips of ground on the north and the east, and on the south by a much larger piece, which have been given by the Marquis of Westminster; and the same nobleman has defrayed the cost of the wall enclosing the same, as well as the lych-gate through which the churchyard is entered from the village. The cost, exclusive of this, and the tower, was 3,000*l.* Mr. Henry Wigginer, of Chester, was the builder; and Mr. John Harrison, of Chester, contracted for the joiner's work. The edifice has been opened for divine service.

Calverley. — St. Wilfrid's (parish) Church, Calverley, has been restored and re-opened. During the last sixteen months extensive alterations, amounting to a complete restoration, have been in progress at this ancient church. The present restoration was prefaced by the removal of pews, galleries, &c., since which the whole of the roofs have been taken down. That to the nave, which was originally covered with lead, and the only one formed of ancient timbers, has been raised to its original pitch, boarded, felted, and covered with grey slate. The other roofs are entirely new, constructed of Memel timber, and boarded, felted, and slated. Owing to the defective construction of the former chancel roof, the walls had been thrown considerably out of the perpendicular, thus rendering the rebuilding of the chancel imperative. All the old masonry, however, that proved sound has been retained, and the new chancel is an almost exact reproduction of the old one, with the exception that it is lined internally with ashlar instead of rough walling. The aisles of the nave and chancel, which were of recent construction, have been pulled down and extended laterally in order to provide additional accommodation, the east portion of the north aisle being now used as a vestry, and the adjoining bay forming the organ-chamber, screened off from the chancel, &c., by an oak screen. The present porch is new, all traces of the old work having been destroyed; but the doorway into the church is the original one, repaired and rebuilt. In the course of the work it was discovered that the foundations of the nave arcade had been rendered insecure by interments within the church. This has necessitated the taking out of the pillars, the construction of deeper and stronger foundations, and the substitution of new stonework in place of the defective masonry. The walls of the clearstory have been cleaned from plaster, and the stonework pointed. The walling above the nave arches is new, to match the tower walling. The old chancel arch being insecure, a new one of loftier proportions has been substituted. The whole of the seats, stalls, doors, &c., are of oak; and the level of the original floor, sloping from west to east, has been retained. The church is warmed by means of Haden's hot-air apparatus, and the lighting is effected by metal standards, the production of Messrs. Hart, Son, & Peard, of London. The organ has been built by Mr. F. W. Nicholson, Bradford. The east window, with its tracery, has been restored at the cost of Mr. Horsfall and family, of Hornby Grange. The west window is the gift of Mr. and Mrs. Thomas H. Gray, of Calverley, who likewise present the communion-tablets and the oak communion-rails.

The other stained-glass windows, which are in the chancel, are the gifts of the family of the late vicar, the Rev. S. Redhead, of the Rev. A. and Mrs. Brown, the family of Mrs. Sykes, late of Leeds; and a lady, in grateful remembrance of the late Dr. Ramsbottom, of Leeds. The oak for nave roof was given by Mr. Margerison, parish clerk. The church-yard has been levelled throughout. The cost of the works, exclusive of stained glass, has been about 3,600*l*. The contractor was Mr. John Tomlinson, of Leeds. The works have been carried on under the direction of Messrs. Healey, architects, Bradford, by whom the plans of the restoration were prepared.

Books Received.

Sussex Archæological Collections. Published by the Sussex Archæological Society. Vol. xxii. Sussex: G. P. Bacon, High-street, Lewes. 1870.

The volume just now issued by the Sussex Archæological Society, if not one of the best of the very valuable series to which it belongs, a value acknowledged on many occasions in these pages, contains a considerable amount of interesting matter and a number of illustrations of more or less merit, including a portrait of the late Mr. W. H. Blaauw, to whom the society mainly owes its origin. "Notes on Pre-historic Burial in Sussex," by the Rev. Henry Smith, M.A., and an account of a curious mural painting lately discovered in Wisborough Green Church, are valuable. Many, too, will read with interest a memoir by the Rev. Edward Turner, M.A., of Henry Smith, commonly known as "Dog Smith," written with special reference to his Sussex charities. Henry Smith, who died in 1627, gave large sums of money, partly before his death, to various parishes in Sussex, Surrey, and elsewhere, for charitable uses, and mainly "for the settinge of the poore on worke." As he wisely directed that the sum (generally 1,000*l*.) should be expended in the purchase of land, the gross income at the present time must be enormous. For instance, he left 1,000*l*. "to buy lands for perpetuity to redeeme poore captives and prisoners from the Turkish tyrannie." The land purchased with this in Brompton, known as Smith's Charity Estate, and long since covered with houses, already brings in a very large income, which in the course of a few years, as the leases fall in, will become immense. A history of the way in which the various sums left by Smith have increased, and of the manner in which the proceeds are now applied, would be valuable.

To meet the views of members of the Sussex Society who did not join at the commencement, it is proposed, if a sufficient number of names be sent in at once, to reprint vols. ii., iii., and v., at present not attainable.

Mr. Mark Antony Lower announces a new "History of Sussex," certainly long wanted, in two octavo volumes uniform with those of the Archæological Society. We shall be sorry, however, if it be thus restricted. Within such limits it cannot be complete, and it will have the effect of preventing for some time longer the publication of a thoroughly satisfactory history of the county.

Land and Houses: the Investor's Guide to the Purchase of Ground Rents, Houses, &c. By John Parnell, Estate Agent. London: Effingham Wilson. 1870.

The main object of this *brochure* is rather to make personal clients than to instruct fully would-be investors. Still, it does something, and would lead an intending buyer to think for himself, and inquire further. We will not endorse the writer's recommendation of short leaseholds, as "a very good investment," though the hint is given that the amount likely to be required for dilapidations at the end of the lease should be properly estimated; nor can we agree with him in advising that a mortgagee who has lent 2,000*l*. upon freehold houses, producing 180*l*. per annum when let, may safely lend another 500*l*. on the same security, and still have plenty of margin.

Stables and Stable Fittings. London: St. Pancras Ironwork Company. 1870.

As we have recently drawn attention to the stables and loose boxes fitted up as models by this company, at their works, in Old St. Pancras-road, we need only say of the little work before us, that it is a trade book supplementary to those models, and includes a considerable amount of useful information on the subjects of which it treats,—"stables and stable fittings,"—irrespective of the company's special manufactures.

The Practical Solution of the Great Sewage Question, by a Combination of the Irrigation and Precipitating Processes. By William Justyne. John Day. London, 1870.

Reading the first portion of this book, the chief object of it would seem to be to discredit the utilisation of sewage by irrigation, the system being pronounced unprofitable and detrimental to the public health, although there is not at present, at any rate, the least evidence to that effect. Reading further, however, it is found that this is but secondary, the main purpose being to advocate the A B C process, the managers of which are certainly the most indefatigable trumpeters that we have heard for some time. We have no wish to prevent Mr. Justyne, or any other writer, from advocating to the utmost a system of which he may think well, but we do most seriously object to the endeavour, as made in this book, to raise a cry against sewage irrigation on the ground of its spreading cholera and all sorts of dreadful diseases to slay "new hosts of human victims at every variation of the wind," without a tittle of reliable evidence to support the assertions. The hollowness of the cry is shown by the advice, with which the book concludes, that the sewage of towns should be used to irrigate land, but that it should be done through the A B C Company, who would see that the sewage was applied at the right times and in moderate quantities.

Miscellanea.

The New Law on Public Education.—The Act to provide for public elementary education in England and Wales has been issued. There are two sections and five schedules in the statute. The Act is divided into two parts—"Local provision for schools," and "Parliamentary grant,"—and then apportioned under several heads. The new law does not extend to Scotland or Ireland. On the "religious question" there are several regulations not requiring children to attend religious instruction. The Education Department is to make school districts, and provide school accommodation for the children resident in each district. A weekly fee is to be paid by each child attending school, which may be remitted on account of poverty. Free schools may be established. Any sum required to meet a deficiency in the expenses is to be paid out of the local rate. With regard to "attendance at schools," the Education Department may make bye-laws, and require the attendance of children not less than five years nor more than thirteen years of age. No penalty with costs is to exceed 5*s*. After the 31st of March next, no Parliamentary grant is to be made except to a public elementary school. In the schedules annexed to the Act there are rules as to school Boards in the metropolis and elsewhere, with a description of the school districts, and the rating authorities are mentioned in the statute.

The Drainage Question at Ashford.—A fully-attended meeting of the Local Board has been held to decide as to the appointment of an engineer to advise as to the drainage of the town, and the removal of the sewage from the river into which the outfalls at present flow. Letters were read from Mr. Bateman and Mr. Baldwin Latham, stating their charges for plans and reports. The chairman and others were averse to going to the outlay, believing it to be unnecessary, and that a local engineer or surveyor could prepare a satisfactory plan. It was contended by others that, looking at the fever which had lately prevailed in the town, and the communication from the Sanitary Commissioners, the Government would certainly interfere, and at a very heavy cost to the town, if the sewage were not taken out of the river; and it was further contended that an engineer from a distance, and of large experience, was required to grapple with this matter, as local parties would be more open to personal influences. On a division, it was resolved, by a large majority, to employ Mr. Baldwin Latham; and a committee was appointed to meet that gentleman.

New Hospital at Tamworth Workhouse. The local guardians having determined to erect an entirely new building instructed their surveyor, Mr. N. Joyce, of Stafford, to confer with the Poor-law Board and prepare plans for a suitable building, at a cost not to exceed 1,000*l*. A design prepared by Mr. Joyce, and approved by the Poor-law Board was adopted by the guardians. The building was arranged for twenty-eight beds. On the ground floor, in the centre of the building, are a kitchen and sleeping-room for the nurse, and on the right and left hand sides are day-rooms for male and female patients respectively. Communicating with the day-rooms are sleeping-rooms for those patients who are too infirm to ascend the staircases. On the upper floor are three wards—one for males, one for females, and a third for special cases. To secure perfect ventilation the wards and day-rooms have been placed so that there are windows in opposite sides of each room. The windows have been so arranged that they occupy spaces between the beds, and not in any case over them. All the windows are hung to open both at the top and bottom, but if at any time it should be found impracticable to admit a direct current of air through the windows, fresh air can be admitted by means of iron louvre ventilators fixed near the ceilings. The water-closets are placed in wings projecting from the main building, approached by passages from the landings. These passages, as well as the closets, have windows on each side, so that no effluvia can possibly escape into the wards or day-rooms. Hot and cold water are laid on to supply the lavatories and baths. The work has been completed by Mr. Joseph H. Clarson, at a cost of 998*l*. 14*s*.

Norfolk-street, Strand.—It is only fair on Norfolk-street, Strand, through which an opening is being made to the Embankment, to state that it was not always quite so uninteresting a street as of late years it has appeared. In the *Postman* for January 13, 1698, it is stated:—"On Monday night the Czar of Muscovy arrived from Holland and went directly to the house prepared for him in Norfolk-street, near the waterside." William Penn, the founder of Pennsylvania, lived in Norfolk-street. His circumstances, at a certain period of his life, were so involved that it was not safe for him to go abroad. He chose the house as one from whence he might upon occasion slip out by water. In the entrance to it he had a peeping-hole, through which he could see any person who came to him. One of these, having been made to wait more than a reasonable time, knocked for the servant, when he asked, "Will not thy master see me?" "Friend," answered the servant, "he has seen thee, but he does not like thee." Last, but not least, we learn from the *Spectator* that Sir Roger de Coverley, when in town, put up occasionally in lodgings in Norfolk-street, although he had a house in Soho-square.—*Pall Mall Gazette.*

The New Workhouse at Hertford.—A letter from Messrs. W. Wilds & Sons, architects, was read at the last meeting of the local Guardians, in which they say:—"We have examined every door in the new workhouse, and find very many of the frames and hinges in a very faulty condition, attributable to the wood bricks and lintels, which, although sufficient in number and size, must have been put in wet, or, perhaps, in a wet season (for every inch of rough fir in sight has shrunk). Consequently, the frames and hinges are not firmly held, and in some cases there is a lack of sufficient weight in the wood bricks to resist the leverage of the doors; and the current of air in the corridor and passages, at times very strong, has caused slamming of the doors, thereby aggravating, if not in a great measure producing, these defects. . . . The most inexpensive and effectual remedy to be obtained is a wedging up of the lintels and wood bricks, securing the fittings to the floor, and, above all, fixing a check-spring to prevent the violent jar from the sudden closing of those most exposed to the effect of the wind and most used." The suggestions are to be carried out.

New Markets for Aberystwith. — Two market-halls are in rapid progress of construction in Aberystwith. They have been got up by rival limited liability companies. The memorial stone of the one in Market-street has been recently laid by Colonel Powell, of Nanteos, who has granted a long lease of the site on which the old market stood, which market is to be entirely taken down. The Terrace-road Market is already opened.

Cheap Railway Travelling for Working Men.—At a recent meeting of the Metropolitan Association for Procuring Cheap and Regular Railway Transit for the Working Classes, the chairman, Mr. Dawson, read a number of letters from gentlemen and members of Parliament, expressing cordial approval of the objects of the society. Earl Fortescue said: "One penny per ton per mile is found to be a remunerative charge for the conveyance of coal by railway. A ton weight of men and women—from twelve to eighteen persons, without luggage—load and unload themselves from the train, besides bringing and taking themselves away. Even at the low fares you propose, this ton of intelligence would, on an average of the distance travelled, and their own individual weight, pay at least twice as much as one ton of coal pays at 1d. per mile. In case of accidents the railway companies should only have very moderate claims for compensation to pay—in fact, only enough to keep up a penalty upon carelessness; for each passenger, before he starts, has, by a slight extra payment, the power of insuring, from a well-known company, a good sum for himself or his family in case of accidental injury or death on the journey." There was some conversation as to the future action of the association, especially in reference to the Great Eastern Railway

Damages from Fall of a Grand Stand.—At the Leeds Assizes, in the Crown Court, before Justice Brett, damages have been given for injuries to a woman by the fall of the grand stand at Rotherham, in March, 1869. The defendants were members of a committee, and their defence was that the stand was properly made, but that certain stays and supports had been removed. They also urged that the profits were to be devoted to charitable purposes. The judge referred two questions to the jury, first, did certain persons, without the knowledge of the defendants, remove and carry away some of the struts or supports? secondly, did the stand fall in consequence of the removal of such supports? If they found the first question in the affirmative, then the plaintiff could not recover. If reasonable care and skill were exercised on the part of the defendants, then the plaintiff could not recover. The case seemed to come to this, were there diagonals or were there not? If there were diagonals put the whole length, then the stand was properly constructed; otherwise it was certainly defective. The jury found a verdict for plaintiff, damages 85*l*. Plaintiff had previously offered to accept 70*l*. in full discharge.

A Mechanics' Institute for Hazel Grove, Stockport.—The foundation stone of a Mechanics' Institute has been laid in this village. Mr. J. W. Legh, M.P., of Lyme Park, gave an eligible plot of land for a site in the centre of the village, with the buildings standing thereon. It is situate at the end of Hatherlow-lane, and has a frontage to the Buxton turnpike road of 54 ft. and of 47 ft. in the lane just mentioned. The institution will be of brick, with stone base in a line with the corner-stone, and fire-brick cornice, the windows being arched, and locked in with key-stones. It will be two stories in height, independent of the basement story. On the first floor will be a reading-room, 21 ft. by 30 ft.; a library, 14 ft. square; and two class-rooms, each 21 ft. by 15 ft. Above these is a large lecture-hall, 54 ft. by 30 ft., with convenient ante-rooms. There is a porter's house attached. The building will cost over 1,000*l*., towards which nearly 400*l*. have yet to be raised. The architect is Mr. Samuel Howard, jun., and the builder Mr. Samuel Howard, sen., both of Disley.

Postponement of the International Working Men's Congress.—In consequence of the war, the General Council of the International Working Men's Association has appealed to the Continental sections to sanction the suspension of the rule which makes it imperative that the annual Congress should meet on the first Monday in September. In their replies the sections are unanimous in stating that, under existing circumstances, the Congress could not be held anywhere at the appointed time, and they authorise the Council to appoint the time and place of meeting according to its judgment. Some are of opinion that the Congress may be held in Paris at no distant date. The meeting of the Fifth Annual Congress is accordingly postponed till earliest opportunity.

Paris.—Messrs. Bacon have published a cheap map of Paris, showing clearly the fortifications, walls, and forts.

Monumental.—A memorial has been erected at Wexford to the memory of the late Mr. John E. Redmont, who expended a fortune in the improvement of that town. He introduced steamship and railway conveyance, reclaimed some thousands of acres from the sea, built the approaches at both ends of the town, and to assist in obtaining a free bridge across the Slaney he contributed 5,000*l*.——A monument, in the form of a Mediæval altar tomb, to the memory of the late Colonel Ferguson, has just been erected on the Castle Hill, in the Raith grounds, near Kirkaldy, in Scotland. It is sculptured in Carrara marble, and was designed and executed by Mr. John Hutchison, R.S.A. The sides and ends of the monument are enriched with quatrefoil panels. Extending over the top, and in relief, is an Early English cross, with the sacred monogram I.H.S. The whole marble rests on a massive plinth in one block of polished red granite.

Fire on Herne Bay Pier.—On Sunday night a fire broke out at the extreme end of the wooden pier, Herne Bay, owing to some cause at present unexplained. A great number of spectators quickly assembled, but, owing to the absence of any person in authority, there was considerable delay before proper measures were adopted for preventing the flames spreading. As soon, however, as some of the officials of the place arrived, a number of men were set to work, and the progress of the fire was effectually stopped. If this accident should have the effect of obtaining attention to the pier generally, it will be a good thing for Herne Bay.

Watering Roads.—Dr. Whitmore, in his Report on the Health of the Parish of St Marylebone, during July last, says,—"During the summer most of our crowded streets have been watered on alternate days with a weak solution of carbolic acid, as has been the custom for the last four years, and there is no doubt that this excellent antiseptic and disinfectant has been very beneficial in a sanitary point of view. The inhabitants of those streets have often expressed satisfaction at the freshness and removal of disagreeable smells which this acid produces, and they regard it as an addition to their comfort."

Statue for Bradford.—At the last meeting of the Bradford Town Council, a letter from Mr. J. B. Philip, the sculptor of the Oastler Monument, was read, announcing that in accordance with a promise which he had made on the occasion of the inauguration of that work, he was now prepared to present to the Corporation, for the purpose of being placed in Peel Park, the model of the statue of King Alfred the Great, recently executed by him for the Houses of Parliament. A resolution was passed, on the motion of Alderman West, seconded by Mr. Broadbent, accepting Mr. Philip's offer with thanks.

A Belfast Sculptor.—Three statues in Carrara marble, by Mr. Shakspere Wood, have been sent to Belfast for exhibition. One is a full size and full length figure of Enid waiting on "the three" in Tennyson's "Idylls of the King." Another is a similar figure of the Elaine of the Idylls. The third is a nearly full-sized nude figure of a young girl, who "cometh forth as a flower." There are also several busts of Belfast people by the same artist, and one of an Italian girl. The *Belfast Newsletter* complains of the treatment of native artists in the province of Ulster.

India.—The Indian newspapers say:—"The Lahore Museum has secured a very fine series of seventeen sculptured heads executed in plaster, all found at Shahka-Dera, supposed to be the ancient Taxila; also a portion of stone entablature, containing a seated figure of Sakya Muni, and another figure standing; and the plans of the projected floating bridge over the Hooghly at Calcutta are nearly completed, and a contractor selected. The rates, fixed by referees, are at present before the Government at Simla for final approval."

Accident at Paddington.—Dr. Hardwicke has held an inquest at Paddington, on the body of John Clampit, a labourer, aged thirty-six years. Deceased, who was in the employ of Messrs. Brown, builders and contractors, was assisting at some works in Chapel-street, Paddington, and while on the scaffold, shifting some boards, incautiously stepped back, where he had just taken a plank, and fell through, a distance of 42 ft. He was immediately taken to the hospital, but expired on the way. Verdict, "Accidental death."

Leyland.—The trustees of the Osbaldeston Charity, Leyland, near Preston, have for some years contemplated the rebuilding of a number of almshouses. On Monday morning last, the senior trustee, Mr. John Eccles, J.P., laid the first brick. The almshouses, six in number, have a good, commanding position, and will be built of brick, with stone dressings, interspersed with blue and white bricks. The architects are Messrs. Myres, Veevers, & Myres; and the builder is Mr. Wm. Alston, all of Preston.

To House Buyers.—Some benevolent individual is advertising at his own cost as follows:—

"BUILT to SELL.—Inspect new Buildings in carcass unplastered. Beware of heavy ground-rents, repairs, short leases, and old materials."

The advice is good, and should be taken.

Oakum for Lint.—A specimen of fine picked oakum, used in London hospitals for lint, has been submitted by Mr. W. H. Pownall, late chairman of the Middlesex Sessions to Lord Lindsay's Committee. It is proposed to employ paupers and criminals in producing it.

TENDERS.

For erection of new Wesleyan Methodist school chapel, Fern-street, Bolton-le-Moors. Mr. Thomas Ormrod, architect. Quantities supplied:—

		Allowed for Old Building.
Thompson	£1,250 0 0	£28 0 0
Dickinson	1,228 0 0	45 0 0
Marsden	1,220 0 0	50 0 0
Donaldson*	1,196 0 0	50 0 0

* Accepted.

For boundary-wall to garden of Dr. Vincent, East Dereham. Mr. Henry Plowman, architect:—

Nelson	£145 0 0
Mayes	140 0 0
Hubbard	133 0 0
Larner	129 15 0
Skipper (accepted)	118 15 0

For the erection of a detached cottage at Rainham, Kent, Mr. J. H. Andrews, architect:—

Miller	£483 0 0
Sampson	460 0 0
Seager	449 0 0

For the erection of house and stables, High-street, New Brompton, Kent, Mr. J. H. Andrews, architect:—

Tozer	£1,400 0 0
Wilkins & Son	1,330 0 0
Gates	1,271 0 0
Hasrick	1,165 0 0
Baxter (accepted)	995 10 0
Reeves	775 0 0

For completion of Nos. 13 and 14, Alma-road, Ponder's-end. Mr. W. A. Murphy, architect:—

Cooper	£320 0 0
Shapley & Webster	320 0 0
George	279 0 0
Wilson	278 0 0
Whittaker	275 0 0
Pierce	273 0 0
Parsons & Tilling	259 0 0
Snowball	256 0 0
Bance	240 0 0
Warr	219 0 0
Prebble	215 0 0
Blease	207 0 0
Norman	192 0 0

For alterations to six houses in Argyle-place, Tonbridge-street Euston-road, for Mr. Loraut. Mr. James Robert Furniss, architect:—

Matthews	£510 0 0
Ball	330 0 0
Jarman	263 0 0
Taylor, Bros. (accepted)	255 0 0!

For pulling down and rebuilding a stable in the rear of No. 10, Leighton-road, Kentish-town, for Mr. H. O. Nodes. Mr. James Robert Furniss, architect:—

Fawcett	£355 0 0
Ball	350 0 0
Hailey	334 0 0
Dickens	262 0 0
Taylor, Bros. (accepted)	246 0 0

For three houses in the Abbey-road, St. John's-wood. Mr. W. Todd, architect:—

Ebbs & Sons	£3,479 0 0
Simpson & Son	3,365 0 0
Hackworth & Son	3,360 0 0
Phillips & Sons	3,334 0 0
Longmire & Burge	3,277 0 0
Higgs	3,243 0 0

For new building, corner of the Poultry and Queen Victoria-street, London, for Mr. James Wheeler. Messrs. John & John Belcher, architects. Quantities by Messrs. Franklin & Andrews:—

Lawrence & Sons	£20,130 0 0
Little	19,863 0 0
Higgs	19,625 0 0
Perry, Bros.	19,000 0 0
Brass	18,922 0 0
J. & F. Coleman	18,920 0 0
Mansfield, Price, & Co.	18,528 0 0
Gammon & Sons	18,480 0 0
Conder	18,[illegible]33 0 0
Rider & Sons	17,6[illegible]5 0 0
Henshaw	17,449 0 0
Myers & Sons	17,[illegible]39 0 0
Jackson & Shaw	16,822 0 0

For the erection of a villa residence, Park Hill-rise, Addiscombe, for Mr. Easton. Mr. George J. Loe, architect :—

Marriage (accepted)	£1,450 0 0

For house at Walthamstow, for Mr. Wragg. Messrs. John & John Belcher, architects :—

Fox	£1,059 0 0
Deavin	883 0 0
Turner	850 0 0
Reed	811 0 0
Forrest	783 0 0
George	767 0 0
Perry, Brothers (withdrawn)	411 0 0

For timber skeleton tower, Stratford, for Dunn & Squires. Messrs. John & John Belcher, architects :—

Lawrence & Sons	£325 0 0
J. & F. Coleman	145 0 0
Browne & Robinson	139 0 0

For the alterations and additions to Messrs. Farmiloe's premises, Rochester-row, Westminster. Mr. T. Mills, architect :—

Knight & Sons	£4,875 0 0
Sharpington & Cole	4,545 0 0
Howard	4,457 0 0
Holland & Hannen	4,400 0 0
Bird	4,350 0 0
Carter	4,197 0 0
Thompson	4,230 0 0
Macey	4,209 0 0
Scrivener & White	4,178 0 0
Jackson & Shaw	4,009 0 0
King & Sons	3,874 0 0
Browne & Robinson	3,850 0 0

For Methodist Free Church, at Plaistow. Mr. F. Boreham, architect :—

		Spire.		Vestry.	
Death	£799 0	... £22 2	...	£75 1	
Finch	738 7	... 30 6	...	78 17	
Johnson	652 0	... 21 0	...	54 0	
Thompson & Son	636 0	... 28 0	...	65 0	
Bartlett	635 10	... 19 18	...	59 10	
Dyer	628 0	... 29 17	...	60 10	
Keepence	625 0	... 19 10	...	59 0	
Javitt	615 0	... 25 0	...	59 0	
Powell	580 0	... 30 10	...	89 8	
Harrop & Goulder	554 0	... 23 0	...	61 0	

TO CORRESPONDENTS.

M. F. O.—W.—J. W. R.—P. R. H.—D. J. H.—W. P. G.—J. R.—T. O—J. H. A.—J. McD.—H. T.—J. S.—H. P.—T. M.—F. R. W.—H.—F.—J. C.—N. C. F.—J. H.—J. M.—J. R. F.—F. C. F.

F. W. H. (unable to comply).—Architrava (should study geometry. Both ends are equal).—Young Clerk of Works (yes).—H. A. (in type).—Barnsley (in type).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

ADVERTISEMENTS.

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This Company prepares plans, specifications, &c. and reports on plans already prepared; supplies the funds necessary for the execution of the works, and if required, undertakes the execution of such works. The Company also undertakes to purchase lands for the reception of sewage.—Particulars obtained of Messrs. Bailey Denton, Son, & North, Whitehall-place; or of Mr. HENRY DUDLEY COOPER Secretary, No. 41, Parliament-street, S.W.

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The Directors are willing to appoint as Agents persons of good position and character.

31st DECEMBER, 1869.

Claims paid on Life Policies to this date	£815,186
Returned in Abatement of Premiums ditto	609,773
ASSETS.	
Accumulated Fund	£2,290,698
Present Value of Life Premiums	1,309,332
LIABILITIES.	
Present Value of Sums Insured (3,246,547l.)	1,280,800
Present Value of Life Annuities (9,095l. per annum)	65,593

Further details as to the Assets and Liabilities of the Office, may be had on application to the Secretary.

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STONE BUSINESS.—A PARTNER WANTED in the PORTLAND STONE BUSINESS.—Apply to A. W. OTTER, Quarry Owner, Portland.

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PARTNERSHIP.—A GENTLEMAN, who was articled in London, and had a practice on or two years, having just returned from the Continent after studying for sixteen months in France, Italy, and Germany, desires to ENTER into PARTNERSHIP with an Architect who has a well-established business.—Address, A. M. Z. Workington House, Upton, E.

PARTNERSHIP.—An Architect about to go abroad desires to DISPOSE of his SHARE in an established PRACTICE. As time is a great consideration, a low premium will be taken.—Address, 5057 Office of "The Builder."

PARTNERSHIP.—An Architect, of some experience, is desirous of PURCHASING a PARTNERSHIP or SHARE in a well-established and prosperous Architect's Office, in London or other large town.—Address M. N. Postoffice, Chester.

ARCHITECT and SURVEYOR.—CLERK WANTED, to Take Charge of the Department in an Auctioneer's Office. Must be thoroughly competent.—Apply by letter to D. G. 33, King-street, Covent-garden, W.C.

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MANAGER—WANTED, by a middle-aged Gentleman, a SITUATION, as above. Is thoroughly and practically acquainted with building, an efficient quantity taker, estimator, and measurer. Highest testimonials given. Provinces not objected to.—Address, SURVEYOR, 23, Thornton-street, Brixton-road, S.W.

PARISH of ST. JOHN, HAMPSTEAD.—SURVEYOR and INSPECTOR of NUISANCES.—Notice is hereby given, that at the Vestry to be held at Hampstead Workhouse, on TUESDAY, the 13th of SEPTEMBER, 1870, at HALF-PAST SEVEN o'clock in the evening, the Vestry will be prepared to receive APPLICATIONS from persons fit and competent to execute the duties of SURVEYOR of PAVEMENTS, ROADS, and LIGHTING, and INSPECTOR of NUISANCES for this parish. Such officer will be required to reside in this parish, and devote his whole time and attention to the duties of his office. He will not be permitted to engage in any other duty or business without the special previous sanction of the Vestry. His age shall not be less than 21 nor more than 45 years, and he must have been engaged in similar duties. The salary will be 300l. per annum, with an annual increase of 25l. until it reaches the maximum sum of 400l. A thorough and practical acquaintance with sewerage, draining, road making, paving, and other similar works will be a necessary qualification. The duties can be ascertained on application at the Vestry Clerk's Office, New-end, Hampstead. Written applications for the office in the handwriting of the candidates stating age, with testimonials, must be sent or delivered to the Vestry Clerk, on or before MONDAY, the 12th of SEPTEMBER next, by FOUR o'clock in the afternoon of that day. Notice of the time and place for the attendance of candidates will be given, and no candidate is to attend unless he has received such notice.—By order,

WM. GRIBBLE, Vestry Clerk.

Vestry Offices, Hampstead, 23rd August, 1870.

TO FOREMEN JOINERS.

TRAVELLER WANTED, to push the sale of Wood-cutting Machinery. Preference will be given to one who has been accustomed to the manufacture of joinery by machinery.—Address, stating qualifications, R. M. R. Office of "The Builder."

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WANTED, a MAN well acquainted with LAYING CONCRETE, and road levelling, to TAKE CHARGE of large works in London.—Apply to CALLENDER & AMOS, Managers, Val de Travers Asphalte Co. Limited, 150, Leadenhall-street, London, E.C.

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TO CHIMNEYPIECE MARBLE CARVERS.

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WANTED, a SITUATION, as WHITESMITH, Locksmith, Bellhanger, Gasfitter, Stove and Range Work, Forge Work, &c. or as GENERAL HAND. Aged 24. Town or country.—Address, R. BENDELL, Bedford-place, Basingstoke

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WANTED, by a good PLUMBER, GASFITTER, and ZINCWORKER, a SITUATION. Understands all kinds of iron pipe, bath, and well work. Would not object to fill up his time in painting if for a constancy. Town or country.—Address, 2, Shard's road, Meeting-house-lane, Peckham, Surrey.

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WANTED, to APPRENTICE (In-doors), a respectable YOUTH, aged 17, to thoroughly learn the above. He has been eight months with a Painter and Decorator. A small premium given.—Apply to Mr. J. KENNETT, 47, Stepney-green, Mile-end-road, London.

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WANTED, PIECEWORK, by a CARPENTER and JOINER. Any quantity contracted for. Good references to former employers.—Address, W. E. 219, Kingstreet, Hammersmith.

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS or GENERAL FOREMAN. Many years' experience in all branches. Good practical draughtsman, measurer, &c.—Address, PLANE, Mrs. Geoffrey, 2, Pidgeon-yard, Ilford-road, Stratford, E.

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WANTED, by a Young Man, a SITUATION in the Office of an Architect. Has had five years experience in good provincial offices. Would prefer an engagement of two or three years. References as to character, &c. forwarded.—Address, W. J. H. Post-office, Rotherham.

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WANTED, a SITUATION, as WORKING FOREMAN in Painting, Paperhanging, Writing, Gilding, Embossing, and General Decorations. Competent to take the management of a business, measuring, estimating, books, &c. Town or country.—Address, 933, Office of "The Builder."

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WANTED, by a Young Gentleman, an ENGAGEMENT as ASSISTANT. Is well up in office routine, surveying, plans, and detail drawings, &c.—Address, No. 76, Office of "The Builder."

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WANTED, by a good GENERAL ASSISTANT, a RE-ENGAGEMENT (temporary or otherwise). Is a fair draughtsman, accustomed to both in and out-door duties; willing to make himself generally useful. Salary moderate.—Address, S. T. W. 13, Gilbert-street, Grosvenor-square, W.

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WANTED, immediately, a SITUATION, as ASSISTANT, in an Architect's Office, or as CLERK of WORKS. Has been five years with present employer, to whom reference may be made. Country preferred.—Address, stating salary, to A. M. 17, Westbury-road, Paddington.

TO BUILDERS AND OTHERS.

WANTED, by a thoroughly efficient and energetic Shop Foreman of Joiners, a RE-ENGAGEMENT, either as SHOP or GENERAL FOREMAN. Is a good draught-man, also accustomed to machinery. Aged 42.—Address, T. E. 50, Sussex-street, Warwick-square, Pimlico.

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WANTED, an ENGAGEMENT, by the Advertiser, aged 32. Accurate draughtsman; well up in building construction. Thoroughly acquainted with quantity taking, measuring, and estimating. Can draw and estimate dilapidations. Understands land surveying, valuation and management of house property, and is a good accountant. First-class references.—Address, SURVEYOR, Post-office, Tunbridge Wells.

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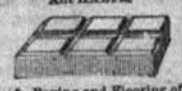
POLONCEAU and SEYSSEL ASPHALTE. ESTABLISHED  1838. For covering Flat Roofs, Paving and Flooring of every description, especially in places subject to damp and vermin. This Asphalte is now extensively used for paving Stables (as shown above), the absence of pints preventing the generation of ammonia. For Estimates and Prices, &c. &c. apply to JOHN PILKINGTON, 15, Fish-street-hill, London, E.C. Country Builders supplied with Asphalte in Bulk for covering Footings, Barn-floors, &c. with instructions to lay it down.

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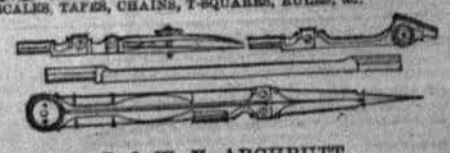
MATHEMATICAL DRAWING INSTRUMENTS, THEODOLITES, LEVELS, CIRCUMFERENTERS SCALES, TAPES, CHAINS, T-SQUARES, RULES, &c.  J. & W. E. ARCHBUTT, 201, WESTMINSTER BRIDGE-ROAD, LAMBETH, Near Astley's Theatre, Manufacturers of the above, and all descriptions of Surveying Instruments, unequalled for quality and price. Illustrated priced Catalogues forwarded on receipt of three Stamps. Every article warranted. Second-hand Instruments of all kinds, by the best makers, always in stock.

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The Builder.

VOL. XXVIII.—No. 1439.

*The Works of Non-Historic Man in Various Parts of the Globe.**

A VALUABLE work has just been compiled by Mr. Waring, the first sight of which will warm the heart of every antiquary and archæologist who looks upon it. It is entitled, somewhat vaguely, "Stone Monuments, Tumuli, and Ornament of Remote Ages, with Remarks on the Early Architecture of Ireland and Scotland;" and consists, chiefly, of reproductions in lithographs of most of the leading illustrations that have been given by different people, in different parts of the world, in various works in various languages, of the structural and artistic remains of non-, if not pre-historic man. We say chiefly, because Mr. Waring has furnished a short reference to the objects on each plate, and sometimes a slight description of them, and points out, when there are corresponding features to be seen in several examples; but his letterpress is not of a length to take from the fact that the drawings are the great interest of the work. These drawings have appeared before in the most scattered places, in ponderous glossy nut-brown tomes a century ago, in the light paper-covered proceedings of antiquarian societies in various counties in England, and in Wales, Ireland, Scotland, in France, Denmark, Switzerland, and Sardinia; in fine, in numerous valuable works delineating the antiquities of Europe, Asia, Africa, and America. Nearly three hundred titles of books are given, in a list, as having been consulted by the author in the compilation of his work. He gives the result of all this search in a hundred and eight large plates, few of which contain less than a dozen representations of objects relating to the early history of man. Thus viewed in one wide array, it cannot be otherwise than a matter of surprise that it has been reserved, for the most part, for our own days to take any appreciating account of the number, correspondence, curiosity, and consequence of these remains.

It is true there were antiquaries in the reigns of Queen Elizabeth and Queen Anne, as well as in that of Queen Victoria. But they were topographers, travellers, genealogists, heralds, or lovers, principally, of Roman antiquities. They did not know a Saxon arch from a Norman one, and most of the older remains they met with were set down either as Druidical or Danish. They ascribed our most masterly and noble Norman cathedrals and priory churches to the Saxons; and every trace of fortification, habitation, monument, or ornament earlier than those, was, in their limited count, either the work of the Danes who harassed the Saxon Christians, or of the Druids who preceded them. One of the early antiquaries who went farthest out of the track beaten by Leland, Stowe, Camden, and Dugdale, was a Welsh vicar in the reign of Queen Anne, H. Rowlands, the author of "Mona Antiqua;" but he had only one idea upon the subject of the large quantity of pre-historic remains in the Isle of Anglesea. They were, to him, monuments, not of an ancient people, but of their priests. Camps, hut-circles, cumuli, as tumuli were then called, cromlechs and carnedds, as well as circles of overthrown or standing monoliths, were all the belongings of the Druids. "Let no one," he pleaded, "despise, and think the accounting for the affairs and transactions of these men to be vain and frivolous, who have in their time deserved so well of the world, and whose characters and actions were esteemed worthy to be recorded and transmitted to our hands even by the greatest of ancient authors." Strabo, Cæsar, Tacitus, Diogenes, Laertius, Clemens Alexandrinus, Diodorus Siculus, Pliny, Ammianus, Marcellinus, and Cicero, were all quoted in support of his theories on this subject. The Druids were Kelts, and the Kelts were the sons of Japhet, who, gradually crossing Europe, arrived at last at the present French coast; and in the course of a few generations their descendants, longing for new pastures and descrying the white cliffs of England, eventually crossed the Channel, and finally wandered westwards until they came to the uttermost land, the shady island, yness Dowyll, Ultima Thule of the Romans, the actual island of groves that suggested to the ancients their fables of Elysian fields and Fortunate islands, Mona, or Anglesea, as we now know it. This was the creed of an advanced antiquary in the reign of Queen Anne. He knew nothing of the small people of Lap stature, who wandered and hunted in the primæval forests of Europe, and fished in its blue lakes, and who were eventually driven northwards with their reindeer and other belongings, by a race they called giants, and who called them dwarfs. The caves that sheltered them, and hoarded their castaway implements and other refuse, yielded up their secret, fully, only to the nineteenth century.

Their times are scarcely explored in the volume we now introduce to our readers. But they are not ignored. It is not Europe only that is searched for its testimony concerning them and succeeding remote ages. The antiquities of India, to which attention was turned by Mr. Maurice when George III. was king, have more recently been found to comprise graves, tumuli, cromlechs, and grave-mounds with stone circles around them, of similar character to those in Wales, Northumberland, Algeria, and Scandinavia. Representations of all these are given; while the cave-pagodas and the temples, overlaid with plates of gold and encrusted with rubies, emeralds, and other precious stones, that astonished Mandelsloe in 1638; and Tavernier, Thouvenot, and Bernier, subsequently, are passed over. The French antiquaries who first counted the steep steps up to the temples, paced their marble courts, noted the sculptured porticoes, the agate and mosaic-work walls, viewed the pillars of plated gold, and penetrated into the sanctuaries lighted with pendant lamps and reflections from innumerable jewels, and occupied by idols of stone and thousands of images of gold and silver, would marvel at the present taste and inquiry that sets a value upon poor mounds of earth, marked out by a few unhewn stones, which they passed by without heed. These mounds and these untooled stones, however, tell us a wondrous tale.

Mr. Waring sets his face against the association of unhewn stone monuments with the so-called stone age in the arbitrary division of remote ages into the three—stone, bronze, and iron—periods lately accepted in what we may, perhaps, call pre-historic circles. He does not believe, either, that all that Cæsar said about the ancient Britons should be taken for granted. The perusal of three hundred volumes on cognate subjects, doubtless, is sufficient to give rise to many misgivings. At all events, the present author sees good ground for dissent to much that has been said. The influence of the Phœnicians in these islands, for instance, is altogether scouted. These early traders, the author says, were the ocean carriers of their day, and that is all. Their settlements could have been no more than trading-stations, or than our "factories" in foreign countries in modern times; and to attribute the least influence to them, either in religion or art, is a mistake.

Mr. Waring follows Professor Worsaae in his division of pre-historic time: two stone periods of thousands of years of duration; the bronze age, beginning in some places some centuries before our era, and in others a full thousand years, and lasting down to about the year 200 of our era; and two iron ages, the earlier lasting from 200 to 450 A.D, and the later from about 450 to 1000 A.D. This gives him a definite period of from 1,500 to 2,000 years to deal with; but it is to the second half of it that he assigns the great bulk of Keltic remains. His sympathies are with the more refined and cultivated people who had bards, riches, chariots, and horses, and whose bards said of them, as Taliesin said of Owain ab Urien, their spears, sharp-pointed, were winged with pain, and they hoarded not, but were ever free of bestowing war-horses to those that craved them;—a grand people surely: not with the small people, whom the Danish antiquary, Sven Nilsson, tells us, they hunted down as sorcerers, and too cunning men. The "drift" is not touched. And the examples of stone tools are not numerous. The author says, "Although a theory which was mooted some short time since, connecting the rough stone monuments with the makers and users of stone implements, and which would have assigned to them a date prior to the use of copper, bronze, or iron, is certainly quite untenable; yet as stone implements are so frequently found, as well as metal, in conjunction with the early graves and monuments, we give some few examples of what they were." These examples commence with some flint arrow-heads from M. Boucher de Perthes's "Antiquités Celtiques." Doubtless, like the bronze spear-heads of the later Kelts, these must have been "winged with pain," for their edges are jagged, and they would make an ugly wound. A flint dagger, a granite hammer, a chalcedony hammer, are given. On this sheet, too, are a stone horse-collar from Glenroy, Scotland, and a stone lamp used at the present day in the Faroe Islands. This modern use of stone utensils points to the necessity of extreme care in the examination of claims to antiquity. "The stone implements of the early rough period, and those of the succeeding polished period," Mr. Waring continues, "are, however, pretty well defined, though the use of both kinds doubtless extended down into the bronze, and even into the iron period, so that their presence on graves as a means of affixing a date to such, must always demand the greatest care and caution." Following these stone pieces is a sheet of urns. Here we are reminded to observe that the ornamentation of a sepulchral urn found in Penzance has a great resemblance to L'Ancresse pottery; that the form of another, found in Derbyshire, is like that of an Indian urn elsewhere figured; that another found in Ireland is similar to one found in Scotland; a fourth, found under a dolmen in Ireland, resembles the form of another met with in or near Anglo-Saxon graves at Brighthampton, and has also a likeness to the shape of a Danish bowl; a fifth, from a chambered tumulus at Kerlescant, Brittany, has ornament-

* "Stone Monuments, Tumuli, and Ornament of Remote Ages; with Remarks on the Early Architecture of Ireland and Scotland." By J. B. Waring, F.R.I.B.A. London: printed and published by John B. Day, Savoy-street, Strand. 1870.

ation that is akin to that of old Irish goldsmith's work, French metal work, and Danish glass; finally, that a cross within a circle found on the bottom of an earthenware vessel from a cairn, Llandissillio, Pembrokeshire, is also to be seen on the bottom of an archaic Greek vase in the British Museum. Is not this correspondence curious?

Again, the concentric circles, and other marks, first observed sculptured on rocks in this country and Scotland within the last few years are given, and their wide diffusion, or exact correspondence with similar marks in other parts of the world, shown. Mr. Waring takes them to be symbolic designs connected with the worship of the heavenly bodies, and adds, "but what knowledge the makers had of their special meaning we have no means of ascertaining." One example is from a rock at Ballybaum, county Cork; another is from a chambered tumulus, Hill of Dowth: they are contrasted with the supposed inscription from the chambered tumulus, New Grange, Ireland. One of the oldest or most primitive-looking marks is also seen on an earthenware vase found under the lava in the Isle of Therasia, Greek Archipelago. Similar rude devices appear on a fragment of pottery found in the Cueva Lobrega, Old Castille; on pipe bowls found in North American mounds; on archaic Greek vases in the British Museum; on a rock with cave sepulchre, Lake Superior; in a Sardinian *nurhag*; and, at last, on Buddha's foot, Amravati tops, India, are to be seen three concentric circles and a central cup.

Curiously, many of the earliest relics of remote ages have this general affinity. Nationalities seem to have bred their own divergences in the course of time. Turning to cromlechs, or cromleche, as the Welsh vicar whom we have mentioned wrote them in the reign of Queen Anne, or dolmen as they are called in France, we may see there are already examples found in England, Wales, Ireland, Denmark, Guernsey, France, Savoy, Corsica, Algiers, Achenny, Siam, Circassia, Rajunkoloor, Malabar, Huggeritgi, and elsewhere in India, and the attention that is now awakened to the subject will, doubtless, lead to the recognition of a great many more. We may see, too, for some purpose, there was frequently a round hole worked in one or more of the stones forming them; and these instances are also to be found in most of the places named. Circles of upright monoliths, again, are found in India, Ireland, Orkney, Scotland, Brittany, Norway, Sweden, and Denmark, as well as at Abury, Cumberland, Stonehenge, and elsewhere in England. There are the huge poised stones we call rocking-stones, too, in Norway; Tunbridge Wells, Kent; Monmouth; Mende, in France; in the Crimea, near Kertch; and in Northern India; and single stones, or monoliths, generally of a splinter form, but sometimes faintly shaped into the suggestion of the human figure, by the rudest means, are found, in this country, in Sardinia, Tartary, Brittany, Ireland. There are round grave-mounds in Australia, Ethiopia, and China, as much alike as one Kalmuc Tartar's tent is to another; and in the Crimea, near Kertch, there is a tract of tumuli, conical, and in general appearance exactly like the great group on the bank of the river Don. These Mr. Waring associates with the Pyramids at Faioum and Gizeh. Circular tombs, formed with a basement of masonry, from which the earth tapers to a point, are found in Italy, North Africa, and Asia Minor. On the sheet that shows them is a view of the tumulus on the plain of Marathon. The heathen races of Germany appear to have differed from the various Keltic tribes in the number and value of the articles deposited in their tombs with their dead. Lindenschmidt's "Germanische todlenlagen bei Selzen" gives some good examples of these graves, and Mr. Waring reproduces them for us. In the stone kist of one was found a woman's skeleton, a gold and red enamelled brooch, a bone sheath, a golden vase, a glass cup, a bronze bowl full of grey ashes, a bronze gilt fibula, an iron knife, shears, a bronze armlet, a wooden comb, an iron buckle, an enamelled brooch, a bronze fibula, blue and red glass beads, and a bronze finger-ring. The largest articles lay at her side, but the small ones were in positions that prove they were placed upon the body. Were they the last gifts of the mourners, or the whole possessions of the departed? Another grave examined in the same work, and shown on this sheet, contained the skeleton of a man, an iron sword, an iron dagger, iron knives crossed, a bronze buckle, three iron lance and javelin heads, an earthenware urn, a glass beaker, and some fragments of bronze articles. Another example, taken from Bähr's "Gräber der Lieven," shows a skeleton with a torque and a necklace on its neck, with brooches or fibulæ on its shoulders, and half a dozen pendant chains on its breast. Two sword-handles and an urn lie by the side of the figure. This Mr. Waring considers late, as Livonia retained the Scandinavian and Teutonic influences down to the twelfth century, owing to its tardy conversion, the first missionary, Meinhard, a German monk, not labouring there till 1186.

Although Mr. Waring dismisses the Phœnicians from any share in the cultivation of the early inhabitants of these lands, he does not debar them from all connexion with architectural remains in more southern climes. He commences his work, indeed, with one of the temples, imputed to them, at Crendi, in Malta, though it is only to show that, if this is their work, it has no resemblance to our own stone circles. The plan indicates that this building, formed of large stones, set indiscriminately one over another, as in more ordinary masonry, is of a form best described, briefly, as half a dozen ovals, roughly drawn towards a common central entrance, extending right across the group, four ovals being on one side of this line, and two on the other. This plan has been supposed to represent the mundane egg, believed to be at the base of all ancient religion. The ruin of this temple is known as "Hagiar Kim," which being translated from the Maltese, means "the stones of worship." It has one feature in common with the cromlechs of Ireland, Scotland, Cornwall, and India, viz., the holes mentioned as pierced through the stones. These are of sufficient size to admit of a man being passed through them, which may have been done either as a rite or cure. In the neighbouring island of Gozo there are similar remains, also depicted by Mr. Waring, where these holes again occur, accompanied by spiral and serpent ornamentation, with an altar *in situ*. But, though attributed by La Marmora, Gerhard, Vassallo, Vance, and Gaillaband to the Phœnicians, the author's own impression is, they belong to the people these traders found in possession.

The watch-towers of the Balearic Islands are next illustrated. These "talayots" are circular towers, found associated with large upright stones, much in the same way as the Irish round towers are sometimes associated with smaller and later gravestones. They have a resemblance, too, to the duns, or forts of the Shetland Isles, and of the Hebrides. Two, at St. Augustin, Minorca, illustrated, stand about sixty paces apart, surrounded by unhewn stone circles, and with stones so placed that they are believed to be altars and tombs. One, at Son Noghera, Minorca, resembles a Sardinian *nurhag*. The general impression appears to be that they were intended for defence. The Sardinian *nurhags*, of which there are some 3,000 remains, according to La Marmora, were depositories for treasure, it is believed as bracelets, collars, armlets, and a great number of little bronze figures have been found in them. They have the appearance of low watch-towers also. Mr. Waring says of them, "That they were places of defence, refuge, and safety would appear probable; and even in our own day, allowing for different requirements, we meet with buildings of a corresponding type in the Martello towers along our coast. Nor is the custom yet given up, in the Caucasus, of erecting similar places of refuge." That they were Phœnician or Carthaginian structures he cannot allow, as there are no remains of similar buildings in Syria, Malta, the Levant, or in that part of Africa which belonged to Carthage. Again, he attributes these buildings to the Celtiberian people, who settled there before any trading commenced. "The most analogous structures we are acquainted with," he continues, "being found only in the islands forming part of our own group, which may also have been raised by the same archaic race, which Mr. Hyde Clark considers to have penetrated into Europe, and then into our own islands, from Asia." One writer, Mr. Tyndale, considers them to be, "temples of sacrifice and worship, built by the early Canaanites." The shielings of the Shetland Islands are given to show their resemblance, as also are the bee-hive structures on the high Alpine valleys, and those of the Hebrides.

Sometimes these huts open out of one another, or are associated in groups so closely together that the plan of them is one ramification. They then approximate very noticeably to the ancient towns or camps found in Northumberland, Cornwall, Wales, and Ireland. The Cahernamactiereeh fort, county Kerry, Ireland, appears to be a connecting link between the two. Here there is an embankment of masonry surrounding a roughly circular space, in which are six huts, of various sizes, destined for different purposes. The entrance is through a narrow way left in the embankment, which is made still narrower, about half way through, by projecting stones. This passage opens into a courtyard, where there is a second narrow way, with a guard-hut on either side of it, which, after passing by both doors of these huts, opens into the central space, immediately in front of a third hut, from the doorway of which fresh resistance could be made to hostile comers. In the inner court are three good residential huts. Within the wide embankment, which varies from 11 ft. to 18 ft. in thickness, are three lengths of long covered passages, to be approached only from within the fort; and on it is a small watch-tower. Both walls and huts are built of blocks of grit and sandstone, without cement; and the huts have domes formed of overlapping stones. Very much like it is the fort of Ballyheabought, Fahan, Ireland, also illustrated. And there is a general resemblance, also, to remains of a fort in North Wales, at Aber, and to the tower at Greaves Ash, on one of the Cheviot hills. Specimens given of the masonry of ancient dwellings in Cornwall, Edin's Hall, Berwickshire, and the Temple of Gozo, near Malta, above mentioned, show a marvellous correspondence.

Another sheet of Early masonry shows the attempts man has made in various parts of the world to arrive at the results of the arch, before the principle of it was discovered. An ancient cistern on the Chersonesus, a section of a tomb chamber, at Tantalüs, Asia Minor, and a section of the treasury at Atreus, Greece, all show the required curves wrought in the stones; but a tomb at Mugeyer, on the banks of the Euphrates, another at Kertch, in the Crimea, and a doorway at Uxmal, Mexico, get high-pointed roofs by means of overlapping, square-edged stones. A third plan, adopted in the wall of Tyrins, Greece, and in a cistern at Agrigentum, Sicily, was the slanting forwards of the square-faced stones, which were of a size that permitted of the third course touching and supporting each other. The author says, "It is interesting to remark that the same overlapping method of masonry is to be found also in most of our early chambered tumuli, which may arise from traditionary practice, or may serve to show how nature leads men to adopt similar methods for obtaining similar ends, without any necessary intercommunication. In cases where the surface is flat, it is merely because trouble has been taken to cut off the projecting angles, and no inference as to priority of date can be drawn for certainty from the difference of surface." One of the "duns" in the Isle of Monea, Shetland Isles, has curved walls, whereby the summit is much smaller than the base, without aiming at their meeting; and another example of this rare treatment has been seen in the Kilmalkedar Oratory, county Kerry, Ireland. Both in tombs and dwellings then man in the remote ages under investigation contrived to get stone roofs in various ways. As a rule, it is to be observed that tombs embody all contrivances used in dwellings. Even the long passages to a central chamber of tombs, as at New Grange, are to be found in dwellings. Mr. Waring gives an Esquimaux hut as one instance of this; and an underground domed dwelling with a long, low, narrow passage to it, at South Uist, in the Hebrides, from a paper by Captain Thomas, R.N., as another. Here the length of the building is 45 ft., and the height of the domed chamber 7 ft. In the matter of entrances there are several very curious resemblances to be noted in this wide survey. A doorway of the Acropolis of Sipylus, in Asia Minor, has the same two jambs in one length, gently tapering, with the same low, wide lintel over them, as that of an ancient building in Eubœa, Greece. Again, a gateway at Norba, Italy, whereof the sides are composed of three large stones, one above another, with a lintel of which the under surface only has been worked smooth, has the same characteristics as a doorway in Templepatrick Church, and the doorway of Cill-sleibhe, Armagh. And the round-headed slant doorway of Ardmore tower is of precisely the same form as that of a similar round tower at Abernethy, Scotland. An early instance of vaulting is shown in the oratory on Inchcolm Island, ascribed to a disciple of St. Columba, in the seventh century.

The round towers of Ireland are confronted

with round towers in Orkney, the Isle of Man, Scotland, Norfolk, Suffolk, Wales, Ravenna, Georgia, and America. Farms are shown, too, in the Caucasus, with round towers of refuge. A section of one shows they contained no staircases. The first access from without, by means of a ladder, landed those who entered in an upper chamber, from which a ladder, again, gave access to the flat, parapeted roof, or through a hole in the floor, to a basement chamber. But all have some points of difference from the Irish towers, except those in Scotland, which were probably erected under the influences of the same traditions. Mr. Waring says he sought diligently for examples of similar structures in the East, as the advocates of the fire-worship theory have referred confidently to them; but he could find nothing nearer than the specimen from Georgia he has given, which is a minaret. This is built of brick, 180 ft. high, and has a double set of winding stairs. From the capital, which is of stone, the Muezzin called the faithful to prayer. The author notes that the word "minaret" is taken from the Arabic of "menarah," a lantern, which association may be the result of their use as night beacons. The Irish towers, he thinks, may have served for this purpose, too, as well as for bell-towers, landmarks, depositories for relics and church valuables, and places of refuge for the priests. But he cannot accept Mr. Westropp's suggestion that they were *fanaux* merely. As our readers are probably aware, there are about 120 of these towers still standing, of heights varying from 40 ft. to more than 100 ft. There are about fifty round towers in Suffolk and Norfolk. These, the author thinks, must be a continuation, with adaptations, of the Irish idea in England. The Welsh round towers are, he considers, purely military. We have culled his own opinions, but must add that he gives those of some received writers, though only cursorily, on the subject, so that the reader is in possession of various views upon which he can form his own judgment. Refinement in curves appears to have been a distinctive feature in every branch of early Irish art. Irish urns are pre-eminently beautiful in this respect. Irish leaf-shaped spear-heads are, for the most part, of excellent forms. The curvilinear ornament in the Book of Kells is a marvel; and the pliant curves and interlacings upon Irish crosses, also speak for the familiarity of the artistic mind with curves. We can scarcely be surprised that the builders of these towers should have followed, or partaken, the national taste.

Mr. Waring has ventured to habilitate a figure in pre-historic garb, by the light of the vestiges of garments found in Danish mounds. This is compared with an Irishman in the woollen cloths ascribed, by Sir W. Wilde, to the fifteenth century. They have a great resemblance to each other. Both have trousers coming down to the ankle; both have leathern shoes; both have skirts fastened round the waist by a belt, like the modern blouse; and both have loose capes, or cloaks, without sleeves, over all. The cap of the Scandinavian fits closely to his head, and has a flat crown; that of the Irish Kelt finishes with a point. Both have long hair. Mr. Waring considers the dress comfortable and complete, and a corroboration of his view, that the Kelts were much more polished, and enjoyed many more of the comforts and elegances of life, than is generally allowed. His authority for the Danish dress consists of an interment described by Sir J. Lubbock, in which not only the garments mentioned were found, but an extra cap in a box, with a comb, and a bronze dagger with a wooden sheath to it. A second skirt and pair of trousers, with a well-ornamented leathern shoe, have been found in an interment described in Engelhardt's "Denmark in the Early Iron Age." These have a general resemblance to those just described.

The collection of gold and silver work is very satisfactory. Here we have the Tara brooch, with full-sized details, to contrast with the brooch of Lorn. A silver bodkin found in Largo, Fifeshire, is worthy of a second glance, from the fact that the back of the head of it is marked with a symbol found on the Scottish sculptured stones, while the front of it displays a small cross. Was this wrought for some early convert, who engrafted the new faith upon his old convictions, instead of discarding them? A stone figure is given, found in Scotland, which shows that two brooches were worn at the same time, one on each shoulder. The figure or skeleton found on the Livonian grave before mentioned, it will be remembered, was also decked with two brooches, besides other jewelry. Some of the Highland brooches given are very rich. The curious sceptre and circle ornament found on the Scottish stones occurs in a silver ornament reproduced. And, curiously, on the same sheet there is a horn, richly carved with interlacing work, with the modern date of 1685 upon it. A great many examples are taken from the Copenhagen Museum; and we may see that the Danish goldsmith and bronzesmith had in his mind thoughts identical with those that were wrought out by smiths whose work has been found on Bologna graves, on lamps in Sardinia, and on charms in North Germany. In fine, there is no end to the long thread of observations that can be made by means of this accessible collection.

It is not an original work. It could not possibly be so. But it is a book that will set theories germinating, speculations drifting about, and let wonder loose. Every one who has taken to heart the history of the human race will rejoice in the acquisition of it. But it would have been better, nevertheless, for a more systematic classification of the objects delineated, and fuller descriptions of some of them. The remarks upon the early architecture of Ireland and Scotland, mentioned upon the title-page, are disappointingly brief.

AMONG THE LINCOLNSHIRE CHURCHES.*

A BEAUTIFUL fresh morning, on Wednesday, the 24th, saw our party *en route* by an early train from Lincoln to Caythorpe, thence to return by carriage to Lincoln, making a raid by the way on the churches bordering the line of operation. Caythorpe Church, about fifteen miles (by road) from Lincoln, reminds the student how desirable it is to look with his own eyes at a building before judging of it. The spire has been sinfully libelled in Wickes's well-known work, where it assumes somewhat the shape of a cucumber. It does, in fact, "tumble home" at the top, to a certain extent, as do some of the other spires of the district,—a peculiarity probably resulting from the ambitious intention, at starting, to build an immensely high spire, the lines of which it was afterwards found could not be safely carried up to their natural point of meeting. The church is nearly all of the Geometrical type, the principal point of interest being the central arcade in the nave, of very wide arches on very slender piers, which carries the ridge of the roof, and abuts with a half-arch against the eastern wall of the nave above the chancel arch. This curious and unusual feature may possibly have been intended to strengthen the tower, or counteract a tendency of the latter to settle towards the west. Externally, a centre buttress in the west front receives the thrust of this arcade, and thus adds a peculiar feature to the exterior design. The external masonry of the nave, it may be noticed, is in alternating courses of grey and greenish-brown stone, producing an excellent effect, probably derived from the layers of brown marl which exist in the lias formation of the district. It is thus that natural variations of material should be utilised by the architect who would render his building picturesque in surface and texture as well as in design. From Caythorpe, a pretty drive of about a mile through undulating lanes brings us to Fulbeck, with its red-tiled roofs, which give such colour to the landscape, and its grey limestone church, which, retired at some distance from the road, on a green lawn, under the shade of masses of heavy foliage, seems like Tennyson's "English Home,"—

"The haunt of ancient Peace."

Externally the church is mostly of late date, the west tower the latest, and finished by a parapet and rich crocketed pinnacles, of the style so frequently added by the architects of the "rectilinear" period, whose mission it seems to have been in many cases to complete and decorate the towers of their predecessors. Internally the piers and capitals of the nave are of transitional date, perfectly plain. There is a late Norman font (restored); and it may here be observed, that fonts of this early date are very commonly found even in churches where scarcely anything else of Norman work has been left: they seem to have been religiously preserved,—the rather as their preservation entailed no injury to the building. Fulbeck, however, did not possess sufficient architectural interest to detain the party long, with so much before them, and accordingly the signal was given to proceed. The said signal (as agreed beforehand) was a call-whistle, to be sounded by the leader of the party when "time" was up; and we venture to say that some of the party will not soon forget the sound thereof, and that Othello's "Silence that dreadful bell!" would but faintly represent the feelings of those who were called off from a half-finished sketch of some cunning bit of detail by Mr. Sharpe's inexorable whistle. Dire, too, at such moments was the hasty gathering up of sketching materials, the search for a lost hat (how those hats did get astray!) amid the dark recesses of a sheep-pen pew (for such, alas! exist still), or the frantic exclamations of a young gentleman who wished to know "if any one had seen a two-foot rule?"—a thing which most of us, certainly, had seen. As we had to wait upon railway time, an hour and a quarter was about the most that could be given to each of the more interesting churches; but, nevertheless, there was some good and solid work done, not only in the way of sketching, but in profiling mouldings, capitals, &c., by the aid of the *cymograph*, invented for this purpose by Professor Willis, and since brought into more perfect working form by Mr. Sharpe. Several of these instruments were in the hands of the professional members of the party, and in active employment, and possibly the results of the work may become available, in one way or another, for others than those who were present. Among the ladies, too, who accompanied the Wednesday excursion from Lincoln, and whose society seemed to be highly appreciated by *some*, at least, of the party, were a few practical amateurs, and one young lady in particular might be seen sketching away at details in every church with a rapidity and precision which argued a practised hand and eye, and which might reasonably have excited the envy of some of the professional draughtsmen present. But we must get on to Leadenham. This very fine church is mainly of late Decorated date, the spire and upper stage of the tower being additions in the subsequent still later style. The spire is one of those lofty erections, with large crockets up the angles, so common in Lincolnshire, but wants the slight flying buttress at the base, which is a usual feature. The large and rich crocketing of these spires, though on a near view appearing to overload the lines of the architecture rather, has a charming effect at a distance, standing out like a row of beads against the sky. Other noticeable features at Leadenham are the blank arches below the bell stage of the tower, with remarkably bold and effective cusping; and the fine section, simple, but effective, of the nave-piers and tower-arch, and still more the base-course of the exterior, a model of effective moulding for such a position, and which is to be found in nearly similar proportions in other churches of the neighbourhood. The south side of this church is richer in design and decoration than the north, another not uncommon characteristic. It is suggested that this difference was probably owing to the difference of sunlight on the two sides. The spire, with its grey stone partially covered with very delicately-tinted green moss and lichen, exhibits an exquisite bit of natural polychromy. A mile or two further brings us to Welbourne, a church of great interest, mainly of "curvilinear" date, the tower up to the parapet being lancet, and remarkable for its bold and massive treatment of stair turret and buttresses, and the clearstory being of rectilinear date. The spire (curvilinear) shows the same curious falling in towards the top which we noticed at Caythorpe. The north porch, with rich canopied buttresses and niche over the door, is a beautiful specimen of the Decorated style in its perfection, though unfortunately rather dilapidated. Outside the east wall of the nave is not only a good gable cross, but one of the few specimens left of the little canopy or bell-cote projected from the gable, to hold the "sanctus" bell,* which was always hung as near the altar as possible, so that the priest could conveniently ring it to announce the sanctus. The present specimen is a very pretty feature in good preservation, and in the church is preserved what is stated to be the original bell. A peculiar and not pleasing

* See p. 678, *ante*.

* Called also the "sacring bell," as in the taunt of the courtier in "Henry VIII." to Wolsey:—

"I'll startle you
Worse than the sacring bell, Lord Cardinal,
When——"

But under what circumstances the Lord Cardinal was supposed to have been startled we will leave to the recollection of our Shakspearian readers.

external feature in the church is the stopping of the member of the base-course on each side of the aisle windows, to allow greater length to the latter; and another peculiarity, internally, is the existence in the clearstory, between the windows, of wide and rather shallow niches, six on each side, with four-centred cusped heads; these were suggested to have been receptacles for statues of the apostles. The internal masonry here, as in many of these churches, is left uncovered, and is beautifully regular and closely set, with joints where no mortar is visible, but where the blade of a penknife could hardly be inserted; contrasting strangely with the "restoration" walls of the chancel, where the stonework is also left bare, but where the trick known as "tuck-pointing" has been indulged in, depriving the masonry of all character and expression. The little church at Wellingore, standing on one of the few bits of high land in the district, need not detain us long, the thing best looking at in it being the "poppyheads" of the oak seats, of late date, and showing a very effective appearance produced by a very simple treatment. Navenby, a mile further, is a church of great interest, though irregular and somewhat tame in external design, with the exception of the beautiful flowing tracery windows of the north aisle (very similar to some of the Heckington windows). But, internally, the fine chancel, of curvilinear date, contains treasures in the shape of sedilia of exceptional beauty on the south side, and an Easter sepulchre and monumental arch on the north; the latter (very probably the founder's tomb) is an exquisite piece of work, consisting of a deeply recessed segmental arch, finely moulded, with a low straight-lined, richly-crocketed canopy over, forming a tangent to the arch, and meeting at right angles over the apex, where it finishes in a finial of great beauty; the spandrels also being filled with carving, and the recess overhung by a foliated drop-arch below. It is worth a visit to the church merely to study this one feature. From Navenby to Coleby, a drive of a mile and a half brings us to another little church, but of considerable interest, both on account of its Norman tower, without buttresses and with the thin, flat masonry characteristic of very early work, and internally on account of its Transitional and Early English capitals, and also its Norman font, a capital well-preserved (and unrestored) specimen in the form of solid centre bowl, with interlacing arches carved on the outside, and detached shafts with capitals giving a square form to the whole. Harmstone is interesting only for a bit of Norman work in good preservation; but Waddington, the next church visited, mainly an early "Lancet" structure, is remarkable for the beauty of its carved capitals: indeed, it may be said that the beauty and variety of these capitals of the Transitional and Early Lancet date cannot be fully appreciated except by a circular visit to the churches containing them, passing in review the various forms which they take, and noticing the evident experiments in new effects traceable in various situations. A little detour from the intended line of route rewarded the party with the sight of a little church (Canwick), which would scarcely hold their numbers, almost entirely of Early Norman, in remarkably perfect preservation. Some painters were diligently engaged here, under whose direction we know not, in covering the walls with alternate parallelograms of white and grey paint, in imitation of a parti-coloured masonry! The schoolmaster had not got out here, apparently. "And so home" (as Pepys phrases it) by a charming drive to Lincoln; for there is much to be said after all for the beauty of these nearly flat districts. From Wellbourne back to Lincoln we are on the ridge where the lias and greensand meet, with the white limestone road before us, the land falling slightly on the left to the plain—

> "That sweeps with all its autumn bowers
> And crowded farms, and lessening towers;"

to the point where land and sky blend, with shower and sunlight passing over it (for it was quite a "painter's day"), and occasionally a white spire appearing actually to sparkle in the middle of the blue distance. Some of the party, too, will not soon forget the grand aspect of the cathedral as we slowly approach it from the south-west, still less when we wind round to the top of the hill to find the scenery of the western façade all glorified with the glow of the level sunlight, which works cunning magic of light and shadow in the arcades and in the recesses of the south-west porch, and brings the whole into such a rich and solemn harmony as will fill the memory for long after. Peace be with the builders who left us such a legacy!

Farewell, however, to Lincoln; for, after an unmentionably early breakfast next morning, we have said good-bye to our civil host of the White Hart (whom we recommend to all those who prefer the obliging courtesy of the old-fashioned "house" to the manners of the modern "grand hotel," where you are served as a matter of condescension); farewell, too, to "Steep-hill" (after the manner of Byron's "Farewell to Malta"—

> "Adieu, ye cursed streets of stairs—
> How surely he who mounts ye swears!"),—

and at 6·35 we are off to Sleaford *vid* Boston, to see what that neighbourhood has to show us. At Sleaford Church the interior masonry has been a good deal restored; and, though a large, fine building, it does not present much of special interest. Externally, the heavy massive west tower and spire give great dignity and effect to the front, but with rather a want of refinement; there are some remains of Norman work in this front. There is a fine Decorated window in the north transept, and the west chapel of one of the north aisles (for it is a four-aisled church) shows an inverted arch of construction between chapel and aisle exactly like the well-known feature at Wells Cathedral. We feel more interested, however, with the smaller, but earlier and more artistic church of Silk Willoughby (there must surely be histories attached to some of these quaint names of the Lincolnshire villages), the tower and spire of which are simply exquisite in their unpretentious beauty of line and detail, the latter just giving sufficient richness without interfering with the composition: the wave-line parapet of the tower resembles some of the better known work at Heckington. A remarkably good south porch, and a Norman font, rather peculiar in design, are among the attractions of this charming little church. A fine drive, partly round the outskirts of a park and past a noble avenue of trees, brings us to Osbournby, the chief interest of which is centred in the fine sedilia of the chancel, with the rich, heavy crocketing and foliation characteristic of the Decorated period. Another Norman font, and some oak seats of late date, are to be seen here; and the tower (the lower portion of which is lancet), though low and square in proportion, is worth attention for the simple and effective play of line obtained by means of the shallow buttresses and set-offs on its face. And here let us hint to the architectural student, when on his sketching tour, not to confine himself to sketching what is called "ornamental" detail only, but to take account also of all happy incidents of design obtained by the mere contrast and opposition of wall-surface, and of the lines and working of the masonry; one of the most purely architectural sources of effect, and certainly one of the most durable. We come next to Threckingham, concerning which there is the less to say, since it has been pretty fully illustrated by Messrs. Bowman & Crowther ("Churches of the Middle Ages"), whose drawings, however, admirable as they are, scarcely give an idea of the peculiarly fine aspect of the geometrical tower and spire, with its high broaches with curved entasis line, the whole of a sturdy simplicity of proportion and detail, which would be laughed to scorn by the "committee" in a modern competition, but which may possibly be standing when some of the "competition" spires have tumbled down. The early transitional (round-arched) windows of the chancel possess remarkable beauty and interest, and also the west respond pier of the nave and the capital of another pier now built up in the north wall of chancel, and of later transitional date, with very beautiful and effective carving. There is a lancet font here; and the nave arcade (except the respond alluded to), is of the most admirable early Geometrical work. There could not possibly be a greater architectural contrast than between the tower and spire at Threckingham and that at Billingborough, which may be taken as almost typical, both of the faults and the merits of the late curvilinear spires so common in the county. The proportions of the spire are somewhat scanty (though less so than in some other better known examples), and the thin flying buttresses peculiar to these spires here reach the climax of starvation, having almost the proportions of cast-iron, and having, naturally, sagged visibly at the joint. But, on the other hand, the "aspiring" expression here reaches a climax undisturbed by anything in the design that can conflict with it; the lofty tower rises to a great height in an almost unbroken course of grey masonry, in splendid preservation, finding expression only in the tapering lines of the buttresses, and the one simple two-light window with which each face of the belfry-stage is pierced, and culminating in the lofty spire which almost seems to continue the line given to the eye by the buttresses of the tower below, so sharp is its angle. The junction of tower and spire, indeed, was a problem which the late curvilinear architects rather ignored than solved; the parapet is placed to conceal the junction, and the spire commences a second stage of the design, almost independently of the substructure; but, despite this inherent defect, Billingborough Tower is a noble work of architecture, and well deserving of study. Ten minutes will bring us to Horbling, a cross church, with a central tower, which has played cruel work with the substructure, and aptly illustrates the masonic proverb as to the un-sleeping qualities of the arch. This chancel arch, of Transitional date, has settled to such an extent that the arch,—not a very large one,—is at least a foot wider at the impost than at the base, and nearly all the piers of the nave arcade have been thrust over more or less towards the west. Insufficient foundation has of course been the main cause of this state of things, which the rector of the church informed us, with an enviable philosophical calmness, was "still going on," the masonry having lately shown indications of settling further. Prayers should certainly be offered up in the neighbouring churches for "a congregation in peril." A tomb in the wall of the north transept, with armorial bearings carved below, and a dilapidated and almost grotesque bas-relief of the Resurrection above, probably of the fifteenth century, is of interest; and also the capitals of the chancel arch, Early Transitional, in which the Norman scollop capital is decorated on the face with a pattern of semicircles worked in little beads below the abacus, and one member of the abacus decorated with a kind of fluting: the effect is very pretty, and gives quite an elegant expression to what is in its foundation only an ordinary Norman capital. The late Norman sedilia in the chancel are worth notice, and also a curious form of the zig-zag ornament under the south window of the chancel. The Geometrical piers in the nave contain some beautiful designs in the caps. Swayton Church, a mile or two farther on, has a remarkably interesting chancel of lancet date, the wide internal splays of the windows marking it as rather late in the style, and the exterior showing some of the most beautiful and picturesque masonry, in rather thin courses, that could well be seen. The picturesque of masonry was certainly better understood in the earlier than in the later periods of Gothic art; it is, perhaps, the first source of effect to which an early building age naturally turns; or is it that the unsophisticated employment of stone simply in the manner in which it is most stable results of its own accord in rendering such masonry pleasing and satisfactory to the eye? The piers here, of the Decorated period, are remarkably fine, and the crossing piers also (of earlier date); and the belfry of the tower is roofed by a good groining of late curvilinear date (probably). The tower at Helpringham, where we arrive next, is very similar in general design and proportion to that at Billingborough, the spire, however, being a little heavier and crocketed at the angles, and the thin flying buttresses also carrying large crockets on the upper side, with somewhat singular effect. Here again we find beautiful and picturesque masonry, this time internally, in the nave walls, where the irregular courses of small stones, bound together here and there by a straight course of squared stone driven through them, form quite a picture of expressive masonry. The chancel contains beautiful early geometrical sedilia, with foliated drop arches springing from a cap which is quite an epitome of Gothic art of the period in this feature; there is no carving, but within a depth of 4 in. (excluding the *bell* of the capital) is a cluster of little mouldings, of nine or ten different members, executed with marvellous care and precision, and forming quite a study of the art of moulding an abacus. The west doorway, a remarkably fine one, has been illustrated by Messrs. Bowman & Crowther, who have also so fully and minutely illustrated the splendid church at Heckington as to render it almost superfluous to give any description of it here, further than to remark that the large window of the north transept, a comparatively

recent restoration in the Geometrical style, is absurdly out of keeping with the building, being, in fact, earlier in style than any feature of the original structure, which is entirely of the Decorated period. It is to be hoped that steps will shortly be taken to remove the wretched roof over the chancel, the tie-beam of which cuts off the head of the east window, and shows below the chancel arch. One remark is suggested by the tower of Heckington, viz., the importance of considering the design of a tower and spire, with regard to the outline it will show at a distance, when all detail is lost, as well as with reference to near observation. Fine as the tower and spire of Heckington are, the effect at a distance of a mile or so is anything but satisfactory, as the large angle pinnacles and flying buttresses, rising high above the corbel table, give to the composition at that distance a high-shouldered appearance, depriving the spire, to the eye, of half its length. The thick pointing of black mortar laid on the joints of the internal masonry during recent restoration has a very bad effect, quite destroying the tone of the interior of the building. It is a thing that should not be repeated. From Heckington we adjourn to Boston as head-quarters, but our remarks on the south-eastern churches of Lincolnshire (the most interesting of the series visited on this occasion) we must defer until another week.

MARGATE AND RAMSGATE.

THE Isle of Thanet watering-places, the long-tried *trio*, Margate, Ramsgate, and Broadstairs, not merely retain their old, but show an increasing, popularity. The people of to-day seem quite willing to say, with the ancient illuminator who wrote in his church at Monkton, on the island,—

> "*Insula rotunda Tanatus quam circuit unda,*
> *Fertilis et munda nulli est in orbe secunda;*"

which has been weakly translated,—

> "Isle Thanet is round, wave and water abound;
> 'Tis fertile and fair, the like is nowhere."

And certainly Isle Thanet has many charms, if only in the shape of an open sea, fine air, charming landscapes, and historical associations of the deepest interest, too seldom thought of and followed out by its pleasure-seeking frequenters. A great start is to be made at Margate westward, as we briefly mentioned some time ago, the Hartsdown estate having come into the market. Two hundred new houses will shortly be added to the town in this direction, close to the two railway stations; and a large hotel, communicating with the London, Chatham, and Dover Station by a covered way, somewhat after the style of the Lord Warden Hotel at Dover, is about to be erected. The rapid increase of the town during the last five years and the great success of the large Cliftonville Hotel, on the Fort, show that the new enterprise, the land being so much more easily reached, is a promising one. We may find an opportunity presently to speak more fully of it. Margate jetty is to be enlarged and improved; and the directors have offered three premiums to a limited number of engineers for the best plans for effecting this at the cost of about 11,000*l*. The jetty has become such a favourite place of resort,—a remarkable feature of the town, in fact,—that money well spent upon it will bring a good return, and benefit the place.

Broadstairs still remains the quietest of the sisters three; although very full, there is less of the excursioning element about it,—less flashing in and flashing out. Excellent "Murray," by the way, says, "The breadth of the sea-gate gave name to Broadstairs." When, however, we find that in ancient days, there was a chapel here, (indeed, portions of it still remain), to "Our Lady of Bradestow," which can scarcely be so translated, this asserted derivation seems another example of the substitution of the probable for the true.

In the case of Ramsgate, the apparent derivation of the name gives the place a sort of precedence in Thanet, which the Ramsgate people should not forget. It was the Thanet gate (or opening between the cliffs) *par excellence*, *Ruim* being the name the Britons knew the island by: it was the Saxons who afterwards called it Tanet, with some reference to its display of fire-beacons, and the old geographers made it Thanatos. That *Ruims-gate*, with its noble pier and other advantages, is now doing its best to maintain its precedence, we will not say. Very little care seems taken to make the most of its natural advantages, and increase the beauty of the place. We may point to the miserable surroundings of the Sands so much frequented, to which there is no proper entrance; an untidy stone yard, and the utter absence of anything like art, or even care, characterise the spot. The appearance of the locality seems to have an effect on the visitors to it, for never have we seen there such ill-dressed and ill-mannered crowds as have been assembled during the present season. From a sanitary point of view, by the way, while on the sands, we would point out to fond mothers that to tie up children's dresses, and to set them half naked paddling about in the pool of sea-water left on the sands as the tide recedes, is by no means a safe practice, especially in the case of delicate little girls, with a sharp wind blowing. Incalculable mischief must often be the result.

The briskest street business in Ramsgate is that of boot-cleaning,—not merely blacking, but whiting. If half the energy and activity to secure customers exhibited by the poor boys engaged in this occupation were uniformly shown by men, either in the pursuit of knowledge or business, probably fewer complaints of "bad luck" would be heard.

A number of small neat houses have been built lately in the suburbs of Ramsgate, and some of the more recently-erected shops in the town look bright and tasteful. The most important building operation, however, is the pile of brick and stone edifices in Gothic style on the East Cliff, forming the Granville Hotel. The hotel proper, at one corner, includes, with other good rooms, a fine ball-room, quietly and tastefully decorated, with a stage for concerts or plays. The chimney-piece is handsomely carved, and has inscriptions, which is also the case with the entrance doorway, where visitors may read,—"Through this wide gate, none can come too early, none depart too late." The external elevations are effective and sensible. In connexion with the hotel are gardens, lighted up at night, and an excavated passage-way leads to an esplanade below, and the beach.

The clever, if somewhat erratic, architect of the pile was committed for trial on a charge of libel, on the day we were in Ramsgate, but will, doubtless, put the matter straight in due time, and act up to his motto, "En Avant." This new part of Ramsgate is to be called St. Lawrence-on-Sea.

The real St. Lawrence is half a mile inland, and has a Norman church modified in later Mediæval times. The main columns within are Norman, bearing pointed arches; and the Norman tower, now covered with roughcast, has a semicircular arcade around it, above the roof of the church. The building was restored four or five years ago. A good brass to Nicholas Manston, 1444, formerly in the floor, is now affixed to the north wall. If the visitor travel about a mile farther, he will find what was the residence of these Manstons, Manston Court, now a farm-house. One of the ancient buildings, unroofed, still remains. The walls are of flints and boulder-stones, and the mortar is as hard as the flints. In this same direction is Osengall Hill, the site of the Saxon grave-yard that was opened and investigated some twenty years ago, with most interesting results; close by being Pegwell Bay, where St. Augustine landed, at the end of the sixth century. The burials were of an earlier period than this, and included some of the Romans who had remained to enjoy Thanet. The views at this point were charming then, and are charming now. On the occasion of our visit, the sea was sparkling with a million of diamonds, the earth was an emerald, and the sky a sapphire.

LEWES, IN SUSSEX.

READERS of the *Builder* know what an interesting old town Lewes is, with its priory ruins in Southover and ancient castle. That Lewes was well-known to the Romans no better proof can exist than the collection of coins, medals and other vestiges of Roman art discovered in or near Lewes, or through the extent of Sussex. The town of Lewes, we need hardly remind the English reader, was the scene of a memorable battle between Henry III. and the barons and their retainers, led on by Simon de Montfort, Earl of Leicester.

A splendid view can be obtained on a clear day of the town and its environs from the castle's height. Outlying and stretched underneath, every object of picturesque or romantic interest in and about the place can be seen, the priory ruins and all the parish churches in the town and vicinity are brought forth in full relief to view. Around its six or eight parish churches hang incidents and memorials of more than local value,—memories running back to Saxon and Norman days, of Danish princes and Danish doings; of charitable bequests; of good and great men, who did good works, and impressed their names upon the mind of their age.

In our more modern days Lewes can muster a respectable roll of more than local celebrities.

Towns or cities, any more than individuals, cannot exist on recollections, no matter how glorious or refulgent they might once have been. Towns and cities must be possessed with a recuperative power,—an energy, an industry, *adscriptus glebæ*, or they cannot progress. When we speak of a town in this manner we mean its people. The people of Lewes have a town worth preserving; but, to preserve it, its public boards must repair and improve it. Antique structures will not always last; stone will decay, brick will crumble, and the old memorial oaken beams with their carved imagery and fantastical datings will collapse in time into moths and dust.

As Lewes is looking up in sanitary matters, and ambitious to present a fair face in company with Brighton in many things, the authorities cannot feel offended with us for throwing out a reminder or two.

The situation of the town of Lewes is favourable to its development. There are probably but few of our readers who have not heard of the "Southdowns" as a name applied to "flocks." The title is derived from a series of hills of that name in Sussex, and Lewes lies partly under the western crest of these rather bold and steep prominences. Though affording pasturage to cattle, these hills about Lewes are not rich in under-soil, being of chalk formation. The Ouse winds round their base, and the town may be said to be situated on the river.

To be sanitary wise is to be wise otherwise. To ventilate the cellars and attics of the poor by free air and free drainage is to keep plague and sickness down. To utilise waste material is to create capital; and this Lewes can do with advantage to itself and the surrounding district. The streets of Lewes might be kept in better order; the side channels could be made more distinct, and the main footways raised a little higher over the level of the roadway. The County Hall is a very good building. The county gaol is sufficiently commodious for its purpose. The main thoroughfare is lighted tolerably well; but the side streets might be rendered more passable. Waterworks in Southover supply the town, but the water has rather a chalky taste for London palates; but, then, use is a second nature

We have not heard yet that Lewes has turned the sewage to any profitable account, though in the bed of the Ouse, in the town of Lewes, as well as at Newhaven, eight miles distant, there is ample raw material for agricultural purposes. The town is admirably situated for a thorough drainage.

To and from Lewes to Newhaven there is a trade by boats in coals, timber, malt, and corn. Some years ago there were respectable ironworks in Lewes by the Ouse, and in the last half-century cannon were manufactured here. A gazetteer in the middle of the last century, in speaking of Lewes and its trade, added that "the roads from hence to Tunbridge are so deep and dirty that the ladies are sometimes drawn to church on Sundays in coaches by oxen." There was no need of a "drag" in those days for the carriage wheels, the pull was always on the one side; but a drag would be very necessary to-day in Lewes in descending many of its very break-neck streets and cross lanes.

With public courts and assembly halls, mechanics' institute, memorial library, and baths, shall we say we think that the town ought not to stop short of putting up two or three public fountains; and, as it takes a pride in a long muster-roll of local celebrities, it is strange that it does not erect a public statue to even one of the number. How is this? Is there no room in the High-street, north or south, no niche or indent anywhere, where the public spirit of prosperous Lewes can perpetuate an honoured name, set up an example, and thereby honour itself? Could there not be also a public park laid out for the inhabitants, where trees and shrubs, soft velvet grass, fountains, and flowers might grow, to woo the weary from their cares, and to cheer the tired worker after his toil. Let Lewes look to this, and earn the position desired. The Southdown declivities may be climbed over by the four-footed, but they are rather steep and

undulatory walks for sober-minded or invalided townsfolk to scale in search of recreation and air.

In railway accommodation, the town is pretty fairly served by the London, Brighton, and South Coast Railway.

It will be remembere dthat the western keep of the castle contains the museum of the Sussex Archæological Society. The collection, though small, is interesting. Lying outside the wall of the western keep two mythological marble effigies, one of each gender, are doing penance, or, in the words of Father Prout,—

"Standing naked in the open air,"

and near are to be seen the remains of an old Saxon or British canoe and a small cannon, turned up during some excavations in the district.

Morally and intellectually the town of Lewes is well represented at present. She has churches, schools, asylums, workhouses, and prisons; and three local newspapers to supply the literary pabulum.

THE LATE DANIEL MACLISE, R.A.

THE Council of the Royal Academy appointed Mr. Edward Davis, sculptor, to execute a marble bust of the late Daniel Maclise, to be set up in their gallery to his memory, and the model is now in the sculptor's studio. Maclise sat to Mr. Davis some years ago, so that the bust represents him in early life. It is a beautiful head, full of life and animation; the hair is, perhaps, a little over massive, but none who knew Maclise even in late years can fail to recognise the likeness. The Council have been fortunate in their selection.

In the notices following the lamented death of this great artist, many inaccuracies were committed as to his early days and later opinions. One may well ask who is to write history, when we find as to a man born in our own time, and living amongst us, neither age, name, country, nor parentage, is correctly given. The fact is, there was a desire in after-life to forget the early days, and it seems pretty clear that at one time, at any rate, Maclise strove to show that he was not an Irishman, but a Scotsman; but this was only a passing weakness. From the minister of the Presbyterian Church, Prince's-street, Cork, we learn the true circumstances of his birth as recorded by a predecessor in the ministry, the Rev. T. D. Hincks. It seems that in the month of March, 1797, the "Elgin Fencibles" came to Cork to do duty, and attended regularly at public worship in Prince's-street. On December 24th of the same year, "Alexander McLish, soldier, Elgin Fencibles Regiment, was married to Rebecca Buchanan, daughter of Mrs. Buchanan, of the Almshouse, with the consent of his officers and in presence of his sergeant." The offspring of this marriage consisted of five sons and two daughters, the eldest son, Daniel, afterwards R.A., being baptized on February 4th, 1806,—that is, five years previously to his reputed birth! Alexander, before this time, had given up "soldiering" and taken to the craft of shoemaking. He lived in Castle-street, and afterwards removed to South Main-street, where he kept a leather-shop. His wife, Rebecca, familiarly called "Beckey" McLish, was for many years employed as a pew-opener at the Prince's-street Church. Young M'Lish (or, as afterwards spelt, Maclise) was sent to an English day-school in Cork, and was early known as a clever sketcher and painter of soldiers, horses, and artillery, executed on pieces of cardboard, which he sold to his schoolfellows.

The late Richard Sainthill, F.S.A., early aided him in his education, and Sir Thomas Deane, the architect, always a friend to rising talent, was afterwards amongst his friends, and bought many of his sketches. When Maclise first came to London he lodged with a Mrs. Pearse, in Arundel-street, Strand (not Norfolk-street, as stated). He was at that time in somewhat straitened circumstances, and had to work hard, but soon made his mark, and when he died his will was proved under 40,000*l.* personalty.

Maclise painted one of his two sisters, Isabella, in several of his pictures; she is the most prominent figure in "Snap Apple Night." Maclise was a well-educated man, of a refined and gentle nature, an excellent writer, and a good poet.

Green Slates from America.—It is stated that green slates are being brought from Vermont, U.S., for the English market. Surely they can be produced more cheaply at home.

THE TRUE SYSTEM OF ART ACTION.

IN the endeavour to help to bring about a better and more truthful state of things as regards the *executive* artists of the time, whether workmen or acknowledged "artists," it is not a little difficult to determine where and how best to begin the work, even if in idea only. In all great contemplated changes there are always two ways open: the one is to try and reform and improve some one old and accepted institution already at the work; and the other is to initiate, at least in idea, an entirely new institution that shall, as perfectly as possible, represent and realize the improved or organically new method. It can hardly be doubted that the art action of the Royal Academy, with all its shortcomings and injustices to the so-called inferior ranks of artists, is the best and most valuable now in active existence, in this country at least; but what chance, we may ask, is there, even in the improved position of the Academy, of any change in its system of art action, what probability is there that the Academy will alter its mode of artistic action, or make any sort of change in that system which satisfied Sir Joshua Reynolds and Sir C. Eastlake? There is in reality none; nor do we find elsewhere any institution at work with the proper conviction as to the very foundation and primitive cause of true artistic action—viz., *the distinct personality and individuality of the executive artist.* We have, therefore, to begin again, and can only regret that there is no more direct help. If ever there was in the world a "*clear stage*," it is here. There are two things which must be kept in mind by the student who would understand this now almost unthought-of subject of a true and living art action; the one is that nearly everything remaining of the past has been more or less "restored," or is now in a rapid process of restoration; or, in other words, the whole or a part of the real and true impress of the mind and hand of the original executive artist has been obliterated, or is now being obliterated, and in some instances, as in the British Museum, actually washed away by powerful chemical agents, to clean them, as it is termed. So that, melancholy as the fact is, the old art is fast disappearing, and all evidence of its truth and strength going with it, indeed reducing it to the condition of modern manufactured art. This is the first art fact to be kept in mind, and the second is the fact that the Royal Academy yearly exhibition of cabinet pictures is the only living and active evidence of the capacity and skill, and at times genius, of the artist as an individual being gifted with artistic power. There are, of course, now and then, exceptions to this almost universal rule, but generally and broadly and, as a principle of art action in these modern days, and as a fact, no one can or will dispute it. This is a deplorable state of things enough, but it is at the same time not a little encouraging; for it assures us that the great principle involved in it is a true one, and of the very first moment, otherwise we should have a regular *manufactory* of small oil-pictures, worked out and published like plates and dishes and architectural perspectives; but this being, strange to say, impossible, the great and primitive fact is established that *personal* artistic power is a thing ordained by nature, and a necessity of true artistic action. *It includes the really creative power in art.* Thus shortly may we see two distinct forces at active work in these modern and scientifically-enlightened days of art: the systematic destruction of the old art *handwriting*, and the solitary fact of the old system or method of producing it, still in living action, it is true, but confined to a very small section of living artists, and almost to a single institution; and yet is this art action in the life of to-day, and in the preservation of what remains of it from the past, the most important subject which can possibly occupy the attention of those who are in any wise interested in the well-being and progress of art and the future of artists. And let it be observed that this is not mere theory and ingenious speculation, curious to think about, but practically useless and inoperative! It is, on the contrary, the great principle which will and must rule the future of practical art and the action of working artists.

But, lest any one should think this subject one of mere theoretical or speculative interest only, we may remind him that at no time in the history of art or architecture was there the occasion there is now for a full and fair inquiry into this most vital of art subjects. The high artistic value, and even educational importance, of such buildings as Westminster Abbey, St. Paul's Cathedral, the Temple Church, and so many others, is beginning to be felt; and one of the natural consequences of it is, that their incomplete state as regards decoration, as it is termed, is become matter of notoriety and public interest. But the great question then arises, What is art and decorative art, and how may it best be brought into actual existence, and by whose instrumentality? This is the art question of the time. Now, there are two answers to this momentous question: the one is that art is the result of the combined action of the *hand* as well as the mind of the executive artist, and can be produced only by the combined action of the hand and mind in and through one individual; in short, and to make our meaning perfectly clear, art is the artistic *handwriting* of the artist. This was the old system of art production, and from it came all such work as the Parthenon and its sculptures, the Sistine ceiling frescoes, the Raffaelle cartoons, fortunately not yet destroyed, and St. Paul's Cathedral and Westminster Abbey. The other and modern and fashionable system now in vogue and in practical action everywhere is the direct reverse or opposite of this; its principle is that art can be produced by the combined action of a number of minds and hands working together, or one after another on the same art object, these minds and hands being *directed* and overlooked by another single artist mind, with its hands in its pockets! This is now the universal idea in operation everywhere: and the whole range of objects which we see everywhere about us are the results of this system. Most of the architecture, public statues, and sculpture coinage, and the whole of decorative painting in churches and music-halls, theatres, and club-houses, and everywhere else, is produced in this way. There is little *art handwriting* anywhere to be met with, no results of the personal power of hand of the executive artist, and cannot be while the present idea of art-production lasts and continues to be endured by the public. Such a system as this is, in reality, fatal to real art; because whatever the personal power of the executive artist may be, it can never, as things now are, show itself; for one man fairly blots out the work of another, and the final result, no matter how costly the work, is not art, but *art-manufacture.* We have said that this important and vital subject is, at this present moment, rendered the more especially interesting and pressing from the fact of the proposed decoration, as it is termed, of St. Paul's and Westminster Abbey, the two great churches of London. St. Paul's Cathedral is asking for a quarter of a million of money to cover it with either art, fine art, and art-hand writing, or mere art-manufacture; and the great problem is which of these two systems we have spoken of is to prevail. Is St. Paul's to be "decorated" like a common music-hall or theatre or smart drawing-room, with decorators' work, artistically no higher than paperhanging and graining, or is it to be covered, partially at least, with great painting by *bonâ fide* artists, as is the Sistine ceiling, or the chapel of St. Paul, Parma, or our Whitehall Chapel, by Rubens? Is it to be the work, in short, of tradesmen and common workmen, or artists and Academicians, or, at least, Academy students? Is it to be the result of the *old* system of art action, or the *new?* Let us put this quite plainly, and within the comprehension, as a matter worth a little thought, of all. There is a quarter of a million of money to be spent in impressing on the interior of St. Paul's Cathedral, the pride of London, some pictured thought or other worthy of the building and the city it is in, and the wealth and intellectual progress of the people who call it theirs. A few years back, the whole of this interior was of plain and bare, but at least honest, stonework. Modern art painted it over with four coats of common oil colour, in imitation of stone as fresh from the quarry; over this, in the choir or east end of the church, "decorative ornament," as it is termed, has been added, by way of showing what is intended all over the church. Exeter Hall shows a building completely decorated in this way; and the question then comes, is there, or can there be any sort of interest, good or bad, artistic or otherwise, found in such a mode of covering over the bare natural material of which the inside of a building is composed? Which is best, plain stonework or random painting of panels and mouldings to imitate real mouldings, and details of ornament to imitate the real ornament, which it would

be cheaper to use if cast in plaster and stuck on to the plain flat surface of the walling or roof? But the *nave* of St. Paul's is as yet free of decorative art of any sort except the four coats of common oil colour: let us suppose, therefore, that instead of the whole of this end of the church being covered with manufactured ornaments and colours laid on by mere workmen in accordance with the modern system of art production, and with a consequent result totally devoid of artistic, or mental, or manual interest, the first or antique system of art production be *insisted* on, and that painters be employed to do the work whatever it may be. Let us go a step further, and suppose only sufficient funds be raised for the decoration of one single bay: which is best or worthiest of the place and people who own it, or most likely to induce a second visit to St. Paul's to look at the work? It will, we think, hardly be doubted that the old and primitive system is the best; and that it is infinitely better to have in St. Paul's but one panel painted by a painter, one picture worthy the name of picture, than to see the whole building covered with colours and ornaments all the mere results of business arrangements and impersonal labour! It is not possible to imagine for a moment any progress in art until the old system of art production is again in active operation; and where so good a place to begin it as in the happily unoccupied and empty nave of St. Paul's Cathedral?

CHATHAM DOCK WORKS.

THE Government having decided on opening two of the large basins, with the adjoining new docks, which are now being constructed at Chatham Dockyard, early in the ensuing year, a large number of additional workmen have been placed on the works, in order that two out of the three large basins may be completed by the time determined upon. The two basins, on which between 2,000 and 3,000 workmen and convicts are now employed, are the repairing, and the factory basins, together having a water area of between 40 and 50 acres. Each basin has a depth of water of 30 ft. at high-water neap tides, and will therefore be able to receive the largest ironclad vessels in the Royal Navy. The most forward of the two basins now under construction is the repairing basin, which is entered from the harbour at a point nearly opposite Upnor Castle. This basin has an area of 22 acres, with a wharfage frontage of 3,600 ft., with the necessary docks and workshops. Connected with this basin are four large docks, two of which are nearly complete. Each dock is 468 ft. in length at the coping line, and 430 ft. on the floor, with a width of entrance, at the coping, of 80 ft., and 108 ft. amidships; on the floor each dock is 42 ft. 6 in. in width. Over the sill at high-water ordinary neap-tides, there will be a depth of water of 31 ft. 6 in., and at ordinary neap-tides of 28 ft. 6 in. The factory basin, which adjoins the repairing basin, has an area of upwards of 20 acres, and a quay frontage of 3,750 ft. The works connected with the dock are scarcely in so forward a state as those of the repairing docks. The third basin, which is intended for a fitting-out basin, from which vessels may be finally despatched to sea with the whole of their equipment, stores, guns, &c., on board, has a water area of nearly 40 acres, with a depth of 30 ft., and a wharfage frontage of close upon 6,000 ft. This basin is the least forward of the three, but still sufficient progress has been made to lead to the belief, that it will be completed and ready for opening by an early period. The opening from the fitting-out basin is at Sovereign-reach, where there is at all times sufficient water to float the largest vessels. The extension works which are now being executed at this dockyard, have been in progress since 1856.

VALUE OF PROPERTY.

In Romney Marsh and Ashford.—Mr. H. Cooper, instructed by Messrs. Wightwick & Kingsford, of Canterbury, has sold by order of the Court of Chancery, at the Saracen's Head, Ashford, about 550 acres of land, principally in Romney Marsh and some near Ashford, known as the Wall Estates. The following prices were realised:—Lot 1, 12a. 3r. 35p., at Kennardington, 1,520*l.*; lot 2, 25a. 0r. 15p., in the same parish, 2,550*l.*; lot 4, 13a. 2r., New Romney, 1,260*l.*; lot 7, 41a. 0r. 16p., Hope All Saints, 4,000*l.*; lot 8, 31a. 0r. 24p., in the same parish, 3,350*l.*; lot 9, 31a. 0r. 35p., in New Romney, 3,500*l.*; lot 16, 14a. 1r. 10p., in Eastbridge, 1,620*l.*; lot 19, 2a. 3r. 2p., at Newchurch, 330*l.*; lot 21, 9a. 2r. 16p., near Ashford, 1,460*l.*; lot 22, 26a., adjoining, 2,950*l.*; lot 23, Kennington Farm, 80a. 2r., 4,000*l.*; lot 24, 26a. 2r. 18p., adjoining, 1,600*l.* The several smaller lots fetched equally good prices.

In Dronfield Parish.—These sales took place at Mr. Nicholson's auction-room. Lots 1, 2, and 3, three small allotments of land, were first offered, but the bidding did not reach the reserve bids, and they were withdrawn. Lot 4, a small farm at Cowley, with house and farm buildings, and 25a. 1r. 37p. of land, let for 40*l.* a year, was sold to Mr. John Ward for 1,380*l.*, exclusive of timber. Lot 5, five closes of land, situate between Coal Aston and Dronfield, and comprising 15a. 1r. 2p., was offered, but withdrawn. Lot 6, the Birchett farm, comprising house and homestead, and 91a. 0r. 19p. of land, in the occupation of Mr. Creswick, was sold after a very keen competition between Mr. W. Wake and Mr. A. Wightman, to Mr. H. May, for 4,700*l.*, exclusive of timber. Lots 7 and 8 together, the Stubley farm, in the occupation of Mr. Newton, comprising homestead and buildings, and about 89a. of land, was sold to Mr. W. Wake, for 5,300*l.*, exclusive of timber.

At Doverdale and Ombersley.—Messrs. Bentley & Hill offered for sale at the George Hotel, Droitwich, the freehold estate known as Southall Farm, in the parishes of Doverdale and Ombersley, and comprising a substantially-built farmhouse and homestead, and 167a. 1r. 29p. of productive land. The biddings commenced at 4,000*l.*, and reached 6,050*l.* The property was bought in at 6,750*l.*, which was the reserve price. We understand that the property has since been sold privately for 7,000*l.*

EDUCATIONAL STATE OF BATTERSEA.

AN interesting report on the state of Battersea, as regards education and means, has been made to the Society of Arts, at the request of the council, by Mr. T. Paynter Allen.

Battersea is a very poor district, and its educational means are very defective. The reporter says:—

"The conclusion, from all the facts observed in relation to labour and the condition of the homes, is that much distress, if not actual destitution, exists,—it especially prevailed during the last winter,—and that there is a wide-spread inability to pay even the minimum school fee for every child; but much of the distress is due to an exceptional state of the labour market, and is aggravated by the excessive improvidence of the people themselves. Yet it is open to grave doubt whether free or ragged schools would be the most economical or satisfactory solution of the difficulty which this distress raises in regard to education. This is not the same question as that of making education entirely free. . . . The fee school and free school, standing side by side, would each be alternately rendered inefficient by plethory or depletion. It is beginning to be felt, too, that the epithet 'ragged,' as applied to schools, though very useful at first in attracting sympathy, is exceedingly unfortunate. Even the poor object to it, as being invidious and degrading."

Mr. Allen is of opinion that a competent Metropolitan School Board (with possible evils guarded against) might be made the means of largely improving and shortening the time of primary education, and of thus providing for that art and science instruction which the Society of Arts have so greatly at heart. The task of taking steps for the guidance and information of the electors of such a Board, he thinks, might well be undertaken by the Society of Arts, or similar societies.

As regards Battersea, and the means of its inhabitants, the income of each family averages about twenty shillings. This, however, is the average for fairly regular but not permanent employment; and as 61 families out of the 200 were earning nothing for about a third of the winter, the real average for the 200 families, during six months, was sixteen shillings. Those whose incomes were especially precarious were almost all engaged in building operations,—carpenters, sawyers, bricklayers, and servers. Shoemakers were everywhere suffering, being unable to compete with the machine. In the building trade, a sudden collapse, through rash speculation, reduced many hundreds to short-time work, and threw out others altogether. The two thousand or more labourers who crossed over the bridge to Chelsea daily have fallen away to 200. Thirteen hundred houses had still to be completed in Battersea, and five hundred others were projected; but rather than submit to a reduction of wages, required by the altered conditions of labour, men abandoned work entirely, and went to the rates for support. "On the testimony of a medical officer," says the reporter, "I can state that men in the union have been overheard remarking that 'they could get from twenty to thirty shillings at any time if they liked; but they would be d——d if they would work for less than six shillings a day.' Is it for the convenience of these superb gentlemen that the guardians have consented to an outlay of 60,000*l.* (perhaps more) on annexes to the union, to be decorated with ornamental marble?"

BLECHINGLEY CASTLE, SURREY.

A FINE mansion is being built for Mr. J. Norris, from the plans of the late Mr. J. Wylson, architect, Mr. George Jackson being the clerk of the works. The external walls are of a very hard and durable stone, quarried on the estate, and with Bath stone dressings, the whole producing a pleasing effect. The contractors for the carcass of the building were Messrs. Jackson & Shaw, and the internal finishings are being carried out under the management of the clerk of works. The joinery is left in its natural state, and varnished. The decorations are being executed by Mr. L. W. Collmann, of Portman-square; the hall and corridor floors are laid with encaustic tiles by Messrs. Minton & Co. The new mansion is on the site of one of the ancient buildings, of which marks of interest still remain; the views from the mansion are beautiful and extensive. On Saturday last the workmen employed were entertained at dinner, when they presented to Mr. Jackson a silver cup as a testimonial of their respect and esteem, speaking of the just and impartial manner in which he had acted towards them.

GLOUCESTER CATHEDRAL RESTORATIONS.

THE progress made in the restoration of this cathedral has been described in a circular by the Rev. E. Douglas, sub-dean. The restoration, according to the circular, has been carried out (under the supervision of Mr. Gilbert Scott) on as large a scale as the funds will permit, and with as much rapidity as is compatible with an accurate study of the traces of original design and the cautious and delicate work, and also with the desire to render each portion of the work undertaken worthy of the cathedral church of the diocese. The south porch, says the local *Chronicle*, has been nearly completed. The front of tabernacle work, which had been sadly mutilated, has been reproduced. The modern dial, bearing the motto, taken from Martial, *Pereunt et imputantur* ["The hours pass away, and are set down to our account"], has been removed, and niches for statues, with carved canopies, have taken its place. Mr. Redfern, of London, is carving fourteen statues for the porch. When these, and the central finial, which Mr. Scott has designed, are erected, the exterior of the porch will have been completed. The aisles of the choir have been cleaned and repaired, St. Andrew's Chapel has been finished for some time, St. Paul's Chapel is being completed, and the renovation of some of the other side chapels is in a forward state. The roof of the choir has been coloured by Messrs. Clayton & Bell, who have also received orders to provide stained glass for the five windows in the north side of the clearstory. Canon Tinling states that the carving of the woodwork for the choir has been undertaken by Messrs. Farmer & Brindley, of London, and that Mr. Scott has been instructed to proceed with the restoration of the sedilia, and to prepare plans and an estimate for the reredos,—to provide which the Freemasons of the province have subscribed 650*l.* The south transept is now nearly ready for the stained glass in its great south window, which has been presented by Mr. T. Marling, and which Messrs. Clayton & Bell will furnish; and the cleansing and repair of the north transept have been begun. This, in brief, describes the work accomplished and in progress. Canon Tinling says that "the amount already contributed is not by any means commensurate with the wealth and extent of the diocese"; it certainly, as he adds, "is utterly inadequate to meet the expense of the contemplated restoration." The estimated cost is 45,000*l.*, whereas the total amount paid and promised up to the present time, even including 5,000*l.* given by the Dean and Chapter, is only 14,157*l.*,—considerably under one-third of the sum required. We learn further that already some 6,000*l.* have been expended, while estimates

accepted in reference to the choir and south porch exceed 4,000*l.* more. This sum, however, does not provide for the reredos, the sedilia, the repair and releading of the roof, the floor, or for the organ and side-screens, nor does it include the weekly payments for the general work of restoration in other parts of the church. Canon Tinling adds,—"Additional subscriptions are urgently needed if the choir is to be made ready for divine worship at an early date, and if the restoration is to proceed without interruption."

In addition to the collective gift of the Chapter of 5,000*l.*, the Dean gives 1,000*l.*; the Lord Bishop, the Lord Lieutenant, Lord Redesdale, Earl Eldon, Mr. Marling, M.P., Mr. Price, M.P., and Mr. Charles Walker, each contribute 500*l.*; Mr. Gambier Parry gives 300*l.*; the Gloucestershire Banking Company, 250*l.*; Mr. Monk, M.P., Mr. Holford, M.P., and Lord Dynevor, each 200*l.*; Canon Sir J. Seymour, Canon Harvey, and Mr. T. Fulljames, 150*l.* each; Sir Lionel Darell, a hundred guineas; Canon Evans, Earl Harrowby, Lord Sudeley, Rev. T. Peters, Mr. J. Walker, M.A., Mr. J. J. Powell, Q.C., Mrs. Monk, Mr. T. Holt, Mrs. Claxson, Mr. J. H. Elwes, Sir F. Goldsmid, bart., M.P., Mr. Graham-Clarke, and Mr. B. St. John Ackers, each 100*l.*; and there are about eighty other subscribers of amounts ranging from 75*l.* to 1*l.*; but only about a hundred persons have yet responded to the many appeals that have been made.

COTTAGE HOSPITALS.

A NEW cottage-hospital is to be built at Savernake, on the same hill as the present hospital, but as much nearer Marlborough as the road will permit. Mr. Gilbert Scott is to be the architect of the building, which will be furnished with sixteen beds, to be easily augmented to twenty should the income of the hospital justify the committee in making such an addition at any future time.——A cottage hospital, which has been erected at Stanley, near Wakefield, at a cost of 550*l.*, has been formally opened for the reception of patients. The building is in the Elizabethan style, and stands in an airy and healthy situation, on the brow of a high eminence behind Stanley Church. The working people of the thickly-populated district have taken the liveliest interest in the work, and out of the 460 subscribers to the fund, 430 are from that class. The building was not only opened free from debt, but with a guaranteed income of 60*l.* towards the 120*l.* required.——It is to be hoped the simple original idea of cottage hospitals for country towns and villages, will not be lost sight of in the erection of elaborate and comparatively costly edifices, with architectural pretensions.

THE TRADES MOVEMENT.

London. — An aggregate meeting of the carpenters and joiners of London, in support of the new Code of Working Rules, embracing the nine hours per day, has been held at the Hall of Science, Old-street, Finsbury; Mr. Sinclair, of Messrs. Myers's firm, in the chair. There was a very large attendance from the large firms, shops, and jobs represented. The chairman, Messrs. Harry, Meerden, Davis, Makin, Lewis, Layric, Sadler, and others addressed the meeting in support of its object, and resolutions were adopted to the following effect:—

"That this meeting approves and accepts the code of working rules as prepared by the committee, and accepted at the district meetings; that the working hours be reduced from fifty-six hours to fifty hours per week, being nine hours per day for the first five days of the week, and five hours for Saturday; the rate of wages to remain as at present, 8*d.* per hour. That such a reduction would be conducive to the physical, moral, social, and pecuniary advantage of the trade."

Arrangements were then made for laying the new rules before the master-builders.

The Paris Workmen and the War.—A correspondent writes:—Round the *Mairies* the scene is pitiful. That of the third *arrondissement* is charged with the wives and children of the workmen of the quarter who have been carried off by the war—the bronze workers and those who fashion out the articles in ormulu for which Paris is so celebrated. They are not a thrifty set, and their wives stand helpless now before M. le Maire, wondering what is next to happen. In the eleventh all work has ceased. About 100,000 families are here left without resource. The wages are less than in the third, consequently the want is felt at once. All labour has ended suddenly, as if by the snapping of a spring. Orders half executed have to be given up for want of means of payment. This quarter provides the furniture for the whole of France; and now this furniture, but half made up, remains upon the workman's hands of less value than the raw wood upon which he has expended his time and labour in its fashioning. The forced currency has furnished an excuse for non-payment of the last week's wages, and the family is already beginning to moan with hunger and privation. The subscriptions to the war fund afford another answer to the supplications of distress. But these subscriptions are themselves bestowed with a niggard hand, and only reach the thirtieth part of those already raised for the same purpose in Prussia! But the bright side of human nature was beheld last week when a knot of manufacturers assembled on the Place de la Bastille, and, having summoned the workmen in their employ, frankly confessed their impossibility to continue their trade:—

"Friends and Fellow-sufferers,—How long this crisis may last none can tell, for this war has told its secret of death to none. We have divided our fortunes into two equal shares. We keep one and abandon the rest to you. Let us suffer and be saved, or perish together!"

Many of those engaged in this noble act of fraternity have since departed for the frontier, and the wives and children of those they have saved from actual starvation followed them to the railway, telling aloud this story to the astonished crowd.

ACCIDENTS.

Fire in Victoria Docks.—A fire, inflicting a loss roughly estimated at 15,000*l.*, has occurred in the Victoria Docks, in one of the timber warehouses used for storing bales of jute. This building was 150 ft. long, and of about the same depth, and contained 3,000 bales of jute, each bale being valued at 5*l.* Within a very short time the roof gave way, and it then became apparent that the building and its contents were doomed to destruction. The Salvage Corps succeeded in pulling out several burning bales of jute, but they were no sooner placed upon the quay than the bandages were burnt away, and the compressed jute blew about into flames. As to the origin of the disaster no information could be obtained. The officials state that when the building was locked up on the previous afternoon there was no smell of fire, and no appearance of the jute having become overheated. Jute is evidently a most dangerous material in stores. Overheating was, no doubt, the cause.

At the Fulham Gasworks.—Mr. Langham has held an inquest at St. George's Hospital, concerning the death of William Yelley, engineer, from injuries received while at work in the Fulham Gas Works. William Evans, engineer, Garden-road, Fulham, was engaged with some other workmen at the gasworks raising an iron girder intended to be placed on the top of one of the purifiers. When they had got it up nearly to its position, a horse and cart happened to pass at the moment, and there being a good deal of hammering at the time, the horse started off and came in contact with the guiding rope, which gave way, and the girder fell on to the purifier, and was broken into several pieces. The deceased, who was in the purifier at work when the accident occurred, was knocked down by one of the pieces of the girder, which fell on his right thigh. When he was removed from the purifier he complained of his injuries, and vomited a large quantity of blood. He said he would never again be fit for work. The jury returned a verdict of "Accidental death."

NEW MARKET, ABERYSTWITH.

THE new market at Aberystwith, recently alluded to as having been opened, on Monday, the 22nd ult., is situated in Terrace-road, near the sea, and covers an area of 8,750 square feet. It has been erected in the short space of three months, at a cost of little more than 1,100*l.*, and comprises a general market, having separate stalls for butchers and others; also a large corn-market, together with the usual appurtenances.

The central avenue is 32 ft. wide and 35 ft. high, the roof having semicircular ribs, supported on columns of pitch pine, the whole finished with a large ventilating skylight, the entire length of the building. The front has been treated in Portland cement, as a protection against the severe weather prevalent at the seaside.

Messrs. Szlumper & Aldwinckle, of London and Aberystwith, are the architects; and Mr. James Evans, of Aberystwith, the builder. The market was inaugurated, a short time since, by one of those choral gatherings peculiar to Wales, at which between 3,000 and 4,000 persons were present.

VOTIVE MONUMENT IN HOLY CROSS CHURCH, SCHWABISCH GMÜND.

WE have previously given an account of the interesting little town of Schwabisch Gmünd, in Würtemberg, and of the beautiful church there of the Holy Cross. The little monument, or, rather, "votive pillar," of which we now give a sketch, is situated in the south aisle of the nave of the before-named church, and, as will be seen by the illustration, stands in a shallow arched recess in the wall. At first sight this little monument appears like a churchyard cross or a "Calvary;" but it is quite evident that it can never have served for either of such purposes,—firstly, on account of its diminutive size (it is only 8 ft. high to the top of the highest pinnacle, so that it is on too small a scale for an external cross); and secondly, the very perfect and sharp state of the sculpture and carving at once shows that it has always been inside a building. It bears neither inscription nor date, but is adorned with figures representing St. Peter, St. Andrew, and the Crucifixion. The choice of saints, St. Peter and St. Andrew, both of whom were crucified, seems to bear some allusion to the dedication of the church,—Holy Cross; and it is possible that this pillar was a *votive offering*, or was placed here to commemorate the completion of some portion of the edifice. Whatever may be its purpose or history, it is a capital example of fifteenth-century sculpture, and is particularly interesting on account of its very perfect condition.

FREIBURG MINSTER: FLYING BUTTRESSES.

IN the account we gave recently, with a view of the spire of Freiburg Minster, Germany,* allusion was made to the beauty of the flying buttresses supporting the clearstory walls of the Minster, and we promised an illustration of them. That promise we now redeem.

ST. LUKE'S, KENTISH TOWN, LONDON.

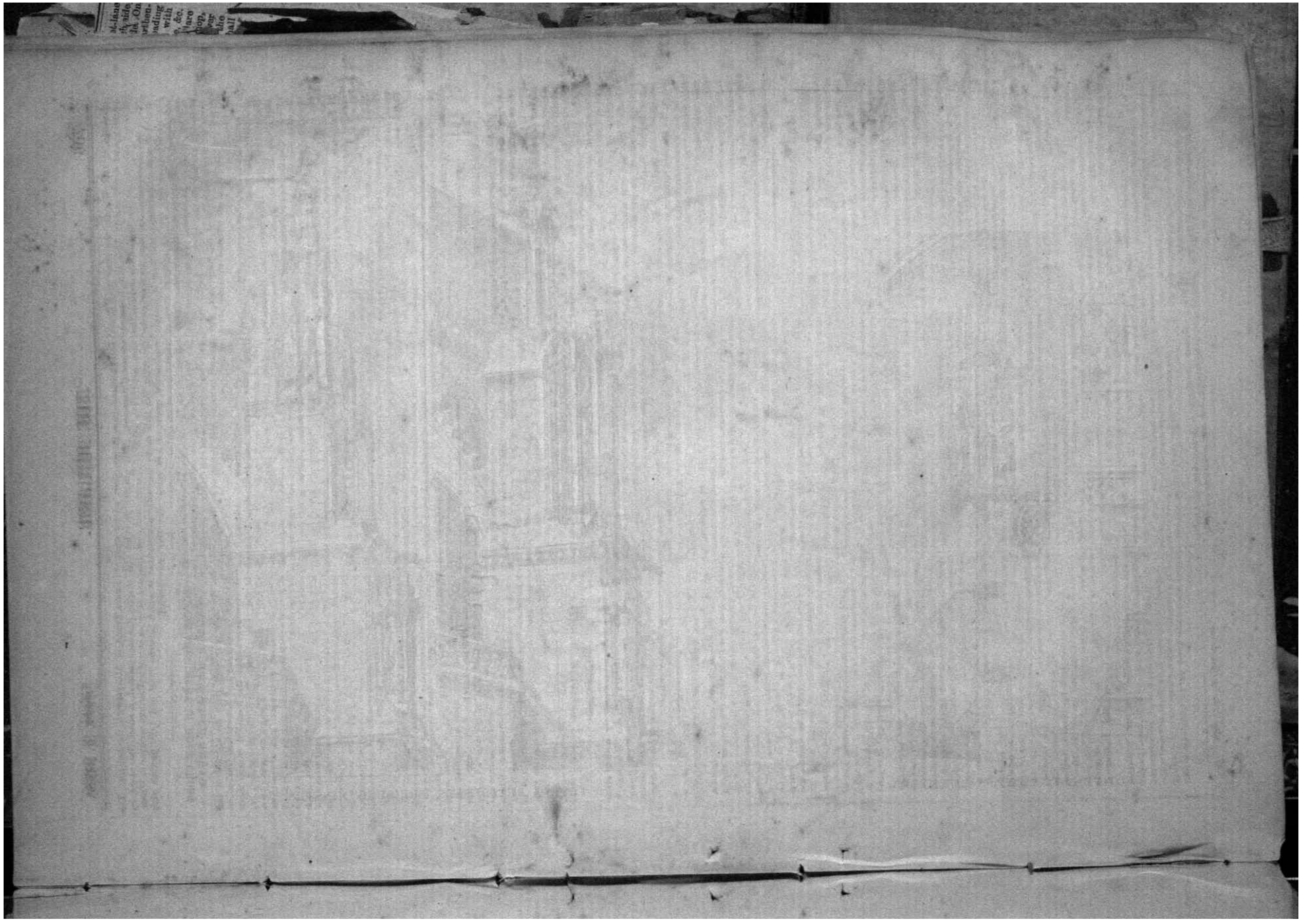
SOME years ago, a church, called St. Luke's, King's Cross, was built upon the present site of the St. Pancras station of the Midland Railway. When it was resolved to build this terminus, the Midland Railway Company paid 12,500*l.* for the existing fabric and site; and, by a special Act of Parliament, leave was given to build a church with this fund upon another site, and form a new parish, the original parish, as well as the church, having been almost swept away to make room for the buildings of the Midland Terminus.

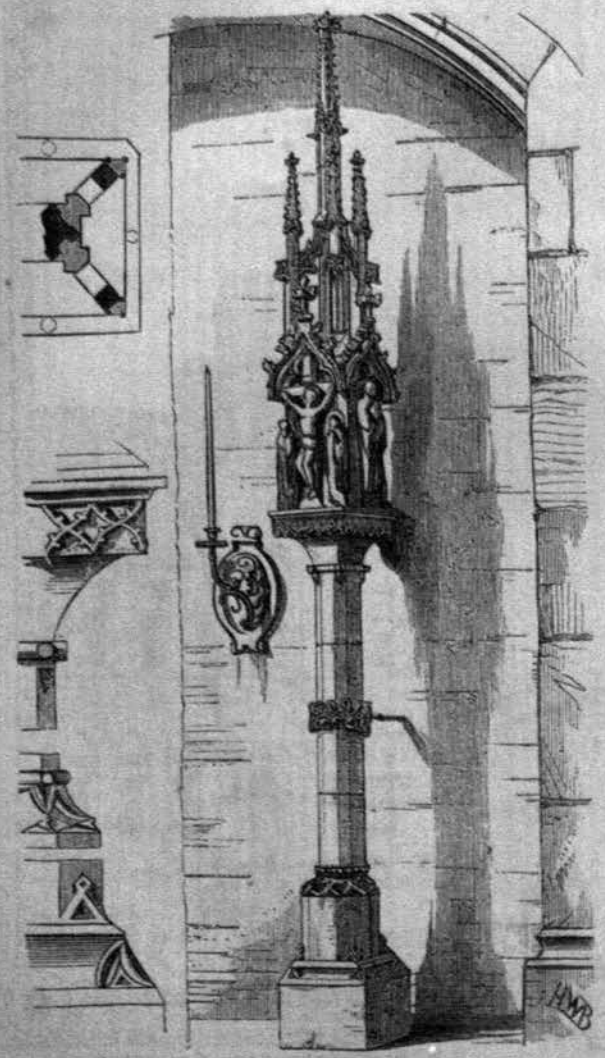
We gave some particulars a few weeks ago of the church that was built in lieu of the former; but as we publish a view of the new building in our present number, it may be as well to repeat them.

The site of the present church and parsonage was given by Christ Church, Oxford, and a parish formed out of the surrounding districts, and out of the fund obtained from the Midland Railway, greatly diminished by the expenses of obtaining the Act of Parliament, the present church and parsonage were built. The contract for the church was 9,391*l.*, and for the parsonage, 2,615*l.* The entire cost of the church, including railings and facing round church, stained glass, warming apparatus, and so on, will have amounted to about 10,500*l.*; that of the parsonage to about 2,750*l.* The contractor was Mr. Thomas Williams, of Cardiff and London; and the architect, Mr. Basil Champneys. The stained glass was executed by Messrs. Heaton, Butler, & Bayne, from designs by Mr. Henry Holiday. The material of the church and parsonage is red brick, of a dark tint. The stone used is from the Tisbury and Hollington Quarries.

The illustration we publish has been produced by a process which seems only to need proper handling and a certain amount of improvement to become of value. It is from a view made by Mr. Thomas C. Nisbet, whose mode of drawing is well adapted to meet the requirements of the system.

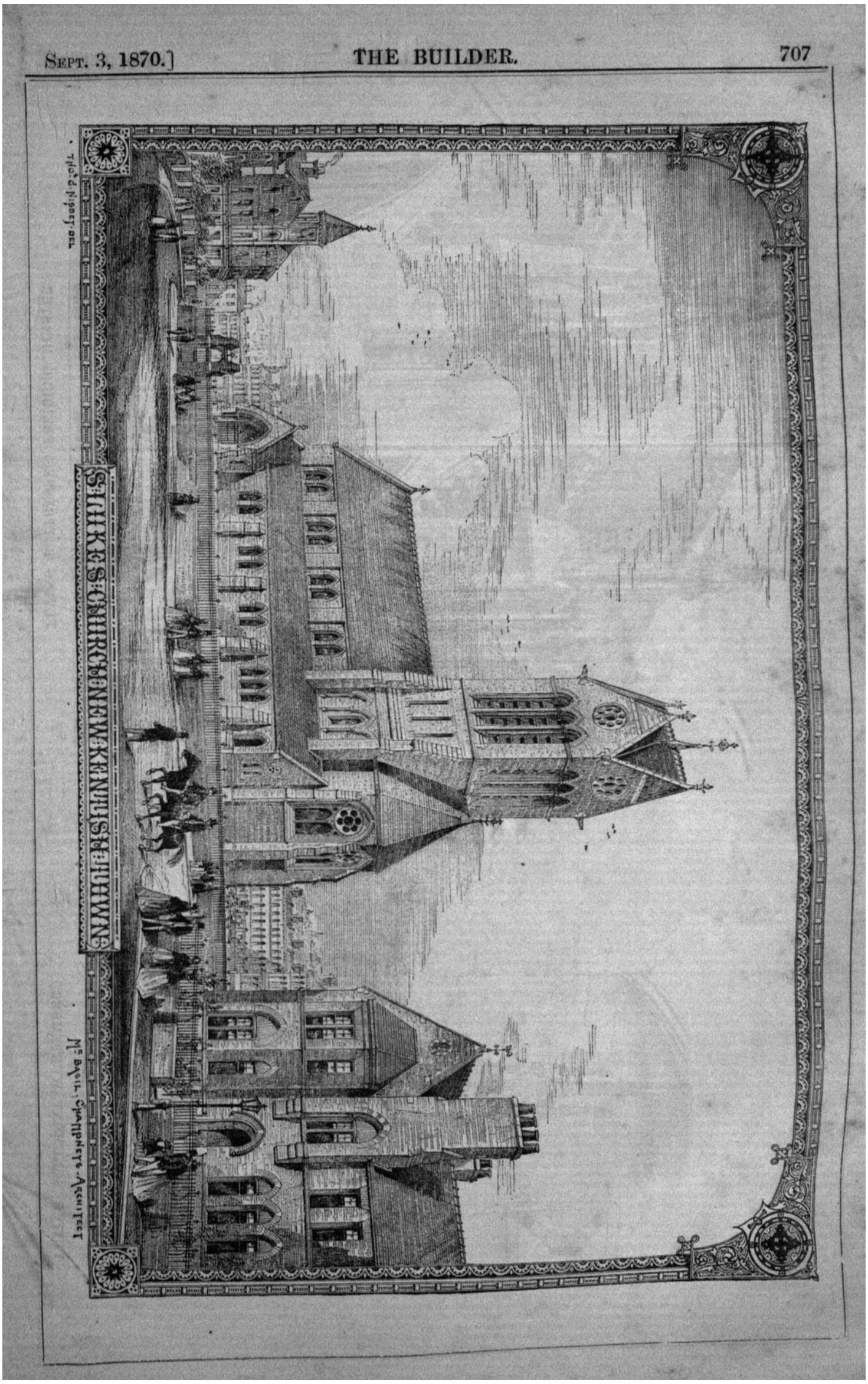
* See pp. 646, 647, *ante*.





VOTIVE MONUMENT, WÜRTEMBERG.

FLYING BUTTRESSES, FREIBURG MINSTER.


SELUKES CHURCH ONE MAKENHISTREET WC
Mr Basil Champneys Architect

"WASTE OF PUBLIC MONEY."

SIR,—I was much pleased to read in your last week's publication, your remarks on "Waste of Public Money." I can fully bear you out in all of them touching the Abyssinian expedition. I was there from the middle of February until the end of the war, being in the last vessel but three to leave Annesley Bay. We were chartered in Bombay, about the middle of January, 1868; were employed until the middle of September following (it was quite this date before we discharged the last of the Government cargo), at the enormous sum of 27 rupees per ton, per month. This on 500 tons, her registered tonnage, for the eight months, amounts to 10,800*l.*, as much as the vessel was worth, *and the Government finding coals.* We burned on an average 12 tons per day (twenty-four hours): say four months under steam during the war, or 122 days; this at 12 tons per day, at 25*s.* per ton (coals were dear in Aden), is 1,830*l.* Add this to the former amount, making 12,630*l.* the use of our little steamer of 500 tons cost the British nation. This is at the rate of 18,945*l.* per annum.

In May, 1868, there were no less than 250 vessels lying at anchor in Annesley Bay, besides vessels at sea, plying to Bombay, Suez, Aden, Suakem, &c., and I dare say all, or nearly all, chartered in the same reckless manner. Well may the English people wonder how the Abyssinian expedition cost the country, in round numbers, eight millions of money!

Hundreds of donkeys were bought in Suez, for 30*l.* each, taken to Abyssinia, and, when the war was over, sold for 5*s.* per head, on the spot, not being worth the cost of shipping away.

I could mention a vessel of 1,000 tons register which arrived in Annesley Bay in the middle of November, 1867, moored there with two anchors, and never lifted them until she set sail for Bombay in June following, having lain there seven months, and never unbattened her hatches. She took back the same cargo she brought. A host of vessels arrived there during the early part of the war, lay there until it was over, having during the nine months discharged about 20 tons of their cargo out of about, say 1,000 to 2,500 tons (I mean vessels ranging from 1,000 to 2,500 tons each). I should very much like to know which Government is to blame for all this. Most of the vessels were taken up in Bombay. I enclose my name and address, and remain, BURRA MALEM SAHIB.

SANITARY SCIENCE AND THE MEDICAL PROFESSION.

SIR,—I am prompted to say a few words on some comments made by the *Lancet* last week on one of your recent articles, and to which, probably, you will not think it necessary to reply. The *Lancet* appears astounded at the temerity of any non-medical writer venturing to attack the medical profession, and more especially complains of the "evident unfamiliarity" of the writer of the *Builder* with "medical history." A list of names is given, supposed to be culled from "the long roll of names illustrious in science," from Galen and Hippocrates down to the present time, of those who are, as the *Lancet* says, the progenitors of all that is known about the preservation of health. Considering, however, that sanitary science, as at present understood, is quite of modern origin, the knowledge of "medical history" displayed by the mention of the two antiquarian physicians appears rather unnecessarily aired. As to the names given, no one will deny that most of them have, directly or indirectly, contributed largely and valuably to the progress of sanitation; but it is a singular fact that nearly all were, or are still, in the employ of Government, and have thus had their attention forcibly and profitably directed to this branch of medical science. The very success of their labours is a proof of what benefit might be expected from the more extended interest in this subject among the profession at large, such as you call for. Unfortunately for the public, most of the really best men in the profession are too much immersed in extensive practice to devote their talents to the study of prevention of disease, so that this more or less theoretical branch of their science falls, for the most part, into the hands of those who are not sufficiently engaged in attempting to cure disease.

In the interests of sanitary progress, we want to know more of the cause of disease. We find waves of scarlatina, or measles, or fever, or whooping-cough, ebbing and flowing as they did in the days of our grandfathers; and, beyond the spread of ordinary intelligence, which tells us to live more cleanly, to see that we drink pure water, and ventilate our rooms, we are really but little forwarder than our grandfathers were. Can the profession explain to us any better than they could a hundred years ago how scarlatina is generated? Without a registration of disease we cannot even ascertain whether a larger or smaller percentage of cases now prove fatal than formerly. Bristol is a notable example of the comparative dead-lock to which sanitary matters are coming, and the medical profession ought to come to the rescue. This city has had the services for many years of an excellent health officer (a member of the profession), under whose care the health of the city improved so remarkably that it was continually being held up as a model of success in sanitary supervision. During the past few months, however, under the same *régime*, a severe epidemic of scarlatina has continually raged. Neither the medical officer nor any other members of the profession can offer any reasonable explanation (though you have proposed one) of this fact, which is one of a host that tend to retard the progress of, and the confidence of the public in, sanitary reform.

Till within the last few years, sanitary matters were but very scantily, and often most inefficiently, touched upon in the *Lancet*; and even now, aspiring, as it does, to be the leading organ of a most disinterested and admirable profession, it would do well to spare a little more of the space now devoted to purely medical and surgical practice, to that branch of the science dealing with the prevention of disease, which is still comparatively in its infancy. Some of the observations made by the *Lancet* sound oddly enough to such of us as remember the long years during which the *Builder*, at one time almost alone, has striven for sanitary reform, and assisted in building up an improved public opinion.

ONE WHO REMEMBERS.

A HISTORY OF SUSSEX.

SIR,—In your brief notice of the "Sussex Archæological Collections" in the *Builder* for August 27th, you announce the fact that I am about to produce a new "History of Sussex"; but you express regret that my work should be limited to two volumes to range with our well-known "Collections," as you consider that my work may prevent the production of what is an acknowledged desideratum,—a "thoroughly satisfactory" history of our grand old county. Such a work will not appear in our time; but, as a contribution to the resources of the future historian, whoever he may be, I am vain enough to believe that the thousands of facts which I have embodied in my book, and which have not hitherto been put upon record, will considerably assist the "coming man." I may be allowed to state that my two volumes, though ranging with the twenty-two volumes of our "Collections," as to the book-shelf, will contain as much matter as four volumes of that series. Such a "History of Sussex" as you and I desire to see would involve the expenditure of many thousands of pounds, and I see no prospect of such a work. I may add that, forty years since, when I was a boy, I published a very small book on Sussex, and that book is now marketably worth more than the published price; which shows that a "compendious" history of the county is called for by the public. MARK ANTONY LOWER.

RAILWAY MATTERS.

Fall of a Railway Bridge in Lanark.—For some time past a number of workmen have been engaged at Orbeiston Bridge, on the Belshill and Roman Bridge road, crossing the Clydesdale branch of the Caledonian Railway, near the Orbeiston Collieries, in making preparations for removing the bridge, which was considered in an unsafe condition. Between forty and fifty men had been working during the Saturday night in order to have it pulled down and the line cleared for traffic. A large number of holes were bored in the bridge, and powder was inserted for the purpose of blowing it up. The bridge is fully 100 ft. long and 30 ft. high, with three 36 ft. arches of free redstone. The shots were fired, and the bridge was shaking from top to bottom, when it was intended to finish the work of demolition with a battering-ram; but scarcely had the men commenced operations before the whole mass unexpectedly fell down with a fearful crash, carrying with it a number of the unfortunate men who were on the top of the bridge at the time. Those who escaped were at once set to work to remove the *débris*, and in a short time they succeeded in extricating their comrades, one of whom was dead; three were in a most precarious state; and Mr. A. Macdonald, the foreman of the work, was slightly injured on the leg and ankles. It is supposed that a keystone had been removed through the effects of the blast.

Sale of Railway Plant, &c.—A telegram from Chudleigh, Devon, says:—"On Saturday last there was a sale here of plant and machinery belonging to the Teign Valley Railway, under a bill of sale for 400*l.*, given (it is stated) by the contractor for the line to the West of England and South Wales Bank. The property realised upwards of 300*l.* To-day the purchasers went to remove their goods, but found the yard barricaded and defended by about 150 'navvies' and 200 workmen, who declared their intention not to allow the goods to be removed until their wages (amounting, as they alleged, to 200*l.*) were paid. The police were communicated with, but refused to interfere, and so violent was the demeanour of the men that all attempts to induce them to give up possession entirely failed. Arrangements have been made for 100 other men to relieve those now on guard to-morrow."

DUST-YARD CINDERELLAS.

A VISIT to a London dust-yard is not thought a fit subject for a Royal Academy picture: let us endeavour to limn for the mind's eye what these places are. A splashy gateway leading to a dirty yard; heaps of rubbish all over the place; mounds of garbage undergoing fiery ordeal. It is a busy scene: carts coming in loaded, depositing ashes to ashes, and carts departing with the breeze. It is privileged ground, for pigs may live and revel here, and fight for an offal meal. Oft are they overwhelmed by avalanches, but they wriggle out again, grunting. Philanthropists, humane M.P.s, and rigid utilitarians might exercise their five senses, and employ all their virtues, for women are here debased by an occupation unfit for females: they are, litterally, *industrious*, for they work till the siftings accumulate high around them. If women working in coal-mines deserved legislative interference and care, surely the like benignant sympathy should be extended to their poor sisters in the dust. Ladies of England, to the rescue! It is a cause for you to take up, and blessings will attend the endeavour.

STORM PROGNOSTICATOR.

SIR,—Leeches are most sensitive of approaching storms. Hours previously to one, they all leave the water, as all know, and cling to the upper part of the perforated jar. Now, if this perforated bulb were bent forward by a long neck, the weight of the leeches crowding into it would cause it to turn the balance, and drop on an electric machine, to convey unerring information to nations. R. T.

NEW ST. THOMAS'S HOSPITAL.

SIR,—A few words from a working man on the above new building I hope will not give any offence. I look upon the *Builder* to be as much the working man's paper as it is the employer's, and it is with a view of eliciting from working men during the forthcoming long winter evenings their ideas on the improvements adopted, and the superiority of modern arrangements in large newly-erected buildings over the old systems, and to show that working men are not slow to appreciate the efforts of architects and others who have made it their study; and as my friend Mr. Hall has not been able to continue his visits this summer to large buildings and public works with members of working men's clubs, my idea is that a few letters from working men may be very useful, not only for mutual, but for practical, technical instruction, which I hope will be reciprocated, and be an inducement to many to take more interest in the *Builder*.

For the information of those who may not have had an opportunity of seeing the new hospital, I will state that it is situated on the Southern Thames Embankment, called the Albert Embankment, between Lambeth Palace and Westminster Bridge, opposite the Houses of Parliament.

It is divided into nine blocks, and to a stranger walking up the Victoria Embankment and over Westminster Bridge, it has the appearance of seven noble mansions, especially now it has got its clean face; and a person at first sight must be struck with amazement at the magnitude of the building. The idea to some people who have not seen it seems incomprehensible and incredible that a hospital should be erected in blocks six stories high, and extending a quarter of a mile long, with wards and rooms 16 feet from floor to ceiling. The amount of study required in designing, planning, taking out the quantities, and working out the details and estimating, must have been enormous. But the outside observer can have no conception of the interior arrangements. Many might take an excellent lesson from these works,—in the accuracy of the planning, setting out, and construction; the admirable arrangements for ventilation, and for the prevention of fire, and the system of warming; the convenience of the hydraulic lifts to take visitors, patients, and attendants up to the level of any floor to the height of about 60 ft., so as to avoid the necessity of travelling up and down stairs; also the hydraulic food-lifts; and very probably there will be telegraphic communication with the various wards. Every arrangement to the present seems perfect.

But one thing to be regretted is, that no improvement is adopted on the system of hanging sashes with weights. When sashes were first introduced, they were a great improvement on the old quarry-glazed windows; and to hang a single sash with weights, to ventilate a room, was very good; and I believe it was usual to hang the bottom sash (which in some cases was the largest), and to fix the top one; but some wise man thought it would be better to hang both top and bottom sashes, for additional ventilation, to let out the foul air as well as to admit the fresh. They used to be hung with lead weights: so that, if they were too heavy, the carpenter could cut a piece off with his saw. I have taken old, unequal-sized sashes hung with lead weights, out of an old mansion; but equal-sized sashes, or sashes hung with four equal weights, have been in use now for many years; and it is a matter of astonishment that people should have put up with the inconvenience of broken lines, the sashes sticking, and the weights wedging against the linings, when the boxes have been too small, or the parting slips too thick, when a system of hanging them *without* weights is so simple, and at about the same cost, only requiring great care and accuracy in fitting and hanging. A WORKING MAN.

IRON SCAFFOLDING.

MR. R. CONCI, Paris, has obtained a patent for iron scaffolding. This improved scaffolding is constructed with an iron platform mounted on four wheels running on axles which are adjustable, so that the platform may rest on these wheels or may be lowered upon the ground. When mounted on the wheels it may be transported with great facility from place to place, and when arrived at its destination it is lowered and secured upon the ground, and forms a firm bed or foundation-plate for the scaffolding. The two axles revolve on four bearings upon the platform, and have motion imparted to them by toothed wheels, one of which is fixed upon each axle, and geared in connexion with an endless screw. Two supports upon the framing of the apparatus are furnished with a bearing for the shaft of the endless screw, and the wheel for imparting the circular motion of the axle for raising and lowering the carrying wheels.

RESTORATION: BURY ST. EDMUNDS.

SIR,—Allow me to say a few words in reply to "A Looker-on." In the first place, the roof of St. James's Church, Bury St. Edmunds, is not, as he supposes, a double, but a single hammer-beam roof. I hope, therefore, it may, at least on that score, be removed from the category of "heaviest" roofs in which he would place it. Then, as to the date of the design. It is believed to accord with that of the middle of the fifteenth century, 1450, or thereabouts. The history of the church requires a roof of that period. Documentary evidence makes it probable that the work of rebuilding the nave was undertaken after the year 1439, while the date of the rebuilding of St. Mary's Church, to which your correspondent would assign even a later date than to St. James's, is known to have been going on between 1430 and 1433. On the whole I think 1450 may be assumed as a fair date for the original design, with which, and not with the late period at which the work was concluded, the roof properly accords. I observe that your correspondent now abandons, or at least pretermits, the supposed incongruity between the roof and the four-centered west window, and seeks to find one in the exaggeration of what he considers the attenuated proportions of the arcades by a high-pitched roof.

As a matter of taste, the question presents itself to me, as it doubtless will to others, in the opposite form. The lofty arcades *require*, to satisfy the eye, a lofty roof. So, at least, thought the builders of St. Mary's, when they finished their nave with a high-pitched roof above arcades nearly as lofty as those of St. James's. The designers of that noble piece of carpentry, so wonderfully superior to the masonry of the substructure, were as well or better able than we are to judge of that matter. I for one applaud and adopt their decision, and I venture to think that had the builders of St. James's Church not been hindered by constructional difficulties resulting from the failure of their work at the east end, in consequence of their having rashly removed the end walls of the aisles, and also possibly by want of funds, they would have adopted a similar treatment.

With regard to the general subject of your correspondent's letter, I understood him to maintain that the rebuilding of portions of a church should be done in the style of the bulk of the building whether early or late. To that principle, taken as applying to any large extent of rebuilding, I demur. In such a case, I think we should avail ourselves of the best work of the best time, and take that as our example, improving it if we can. B. B.

SIR,—Your correspondent who writes on the subject of St. James's Church, Bury St. Edmunds, is correct in his surmise that the high-pitched roof of the nave was adopted in direct opposition to Mr. Scott's advice. I have a copy of a letter from Mr. Scott, dated August 11th, 1862, to the then incumbent, in which is the following passage:—"I have no doubt myself that the course I have given way to is erroneous, and contrary to the true principles of restoration, and inconsistent with the doctrine I am preaching and have for years preached to others." G. J. H.

IMPROVEMENT WANTED.

SIR,—As you have contributed so much towards the improvement of London by the excellent articles which have appeared in your columns on its neglected lanes and alleys, I would wish, through the medium of the *Builder*, to direct the attention of the Sanitary Commissioners and of the building trade to a block of small tenements, covering a large area, bounded by the Broadway and Tothill-street, Westminster, on the one hand, and the Bird-cage-walk on the other.

The object I have in view is the moral improvement and health of this locality. The economical results I leave to the calculations of those who are better acquainted with those details than I am.

It is inconceivable that within view of the Houses of Parliament, in one of the most improving quarters of London, such nests of fever and contagion should be tolerated. The scenes of immorality and riot emanating from these dens, especially on a Sunday, are a reproach to the police. Will you not, sir, assist us with your powerful pen to abate these nuisances?

Considering the great improvements which have been effected and are in progress in this neighbourhood, it is extraordinary that so valuable a site as the one referred to should be allowed to remain unproductive.

I would add that the shop accommodation generally of Westminster is below the requirements of the upper class of the residents.

The Governors of Christ's Hospital, being extensive owners of house property in Westminster, ought, with the large resources at their command, to do something towards the improvement of the neighbourhood.

A WESTMINSTER HOUSEHOLDER.

ANECDOTIC.

SIR,—Amidst just eulogies of the venerable deceased *Baron Pollock*, the best of all, which I read in a newspaper many years ago, has been overlooked. He was early termed, in his judicial dealings with criminals, the *merciful* Pollock. The following, which I had the pleasure of hearing from him at Westminster, a year or two only after his accession to the Bench, has been privately considered a good specimen of extra-legal liberality of sentiment. During a case before him, it was stated that a party had "kept within the letter of the law." "Letter of the law," said the Judge, with honest and contemptuous emphasis to the jury, "why a person might keep within the '*letter*' of the law, and be one of the greatest *pests* to society;"—which I can but think a high-minded and Christian view of "duty to our neighbour."

I will take the opportunity of seeking to give an "original" anecdote of *Dr. Johnson*, which my kind friend, Mr. Tate, of St. Paul's, obtained my leave to offer to Mr. Murray for a new edition of "Boswell," but which I believe was not used. I had it in 1819, then a youth, in Guernsey, from the late Mr. Richard Saumarez, who may be remembered by old stagers there as a "fine specimen of the old English gentleman," of known kindness of heart. He had been of Johnson's college, though several years after him, he being then about seventy, and doubtless heard it from high local authority. It is known that Johnson, on first coming to Pembroke College, Oxford, was poor and hardly able to keep up a decent appearance. An acquaintance, meeting him one day, observed (certainly with little feeling), "Why, Johnson, your *shoes* are 'capped'?" "*Capped*," answered Johnson, promptly; "well, and why shouldn't they—ain't they *fellows?*" Those who know the mark of respect required from undergraduates to college dignitaries will fully understand this. The pun was, perhaps, unworthy of his genius, but is curious from the prejudice he afterwards had, or professed to have, to that rather harmless—peculiarly "Johnian"—accomplishment at Cambridge.

J. D. PARRY.

THE POSITION OF THE ARCHITECT.

SIR,—Your notice of "The Setting Sun," a poem, was brief. I think the following paragraph from it would interest some of your readers, if you will find a corner for it. J. H.

"I SHOULD not like to be an architect.
A man of genius and of cultured mind,
Long patient study, and expert invention,
Designs an admirable public building—
Convenient, light, proportionable, and stately—
Foreseeing with the eye of practical taste
Effects and merits inappreciable
To those who only look with common eyes,
Yet have abundant notions of their own;
And having absolute control of funds,
Possess the power to thwart him every way,
And use their power to alter all his plans.
What can be meaner slavery of soul
Than to be driven to submit to this?
If I were a horse, I'd be a brewer's horse;
If I were a pig, I'd be a miller's pig;
If I were a slave, I'd be a woman's slave,
But not the slave of half a dozen fools."

CHAIRMANSHIP OF THE METROPOLITAN BOARD OF WORKS.

THE names of a number of gentlemen supposed to be candidates have been mentioned, and we have received half a dozen letters, urging the superior fitness for the office of this or that member. Without knowing positively who are the candidates, we cannot pretend to offer an opinion as to who is the best man, nor would any advantage result from our doing so. The Board are quite competent to make a right selection, and are not at all likely to be influenced by the observations of outsiders.

AN AQUARIUM.

SIR,—In common with many other working men I have visited the International Working Men's Exhibition, now open at Islington. On entering at the Liverpool-road entrance, I had not proceeded far on the north-west side when I observed a novelly constructed aquarium, containing a perfect menagerie of fish, consisting of roach, dace, tench, bleak, gudgeon, minnows, four kinds of carp, cray-fish, two sorts of mussels, winkles, snails, beetles, &c. On interrogating the exhibitor, I was informed that the aquarium was 2 ft. 6 in. long, 1 ft. 6 in. deep, and 1 ft. 6 in. wide.

The novelty consists in its being fitted with a reservoir and self-acting syphon, which keeps the water pure and the fish perfectly healthy. A single jet of water playing in the centre causes a continually running stream, the water passing away by means of the syphon: there is therefore no necessity for the aquarium to be emptied at any time, and the fish are maintained in a healthy condition. The aquarium is an object of attraction to most of the visitors. The inventor, patentee, and manufacturer is Mr. W. Small, 13A, William-street, Camden-road, Holloway. J. M.

COMPETITIONS.

Epsom.—The Burial Board have, in a limited competition, selected the designs by Messrs. R. M. Shaw & W. Young, of Exeter Hall, Strand, and Crooked-lane, City, for the chapels, lodges, gates, &c., to be erected at their new cemetery. The selected designs are in the Early Gothic style, of English character. The works are to be commenced immediately, under the superintendence of the above-named architects.

Bramley.—The guardians of the Union of Bramley, near Leeds, having determined to erect a new workhouse, lately advertised for

designs, offering premiums of 50*l.* and 25*l.* respectively. The buildings are to contain 250 inmates, at a cost of 9,000*l.*, not including the land, boundary-walls, &c. Fifteen architects from different parts of the country responded by submitting plans. The designs of Messrs. C. S. & A. J. Nelson, of Leeds, have been selected for the first premium; the second being awarded to Messrs. Wade & Turner, of Barnsley. The works are to be commenced immediately, under the superintendence of Messrs. Nelson.

SIR ISAAC NEWTON'S OBSERVATORY.

SIR,—In response to your notice of the fund for purchasing the above, and presenting it to the nation, I beg to say I have received the following subscriptions:—Sir R. I. Murchison, bart., 10*l.*; Miss Burdett Coutts, 5*l.*; W. Gladstone, 1*l.*; B. Hope, 1*l.*; R. D. Box, 1*l.*; A. Findlay, F.R.G.S., 10*s.*; A. Martin, F.R.A.S., 10*s.*

J. BLOFELD, Hon. Sec.

4, Basing-road, Notting-hill, W.

WHICH IS THE GROUND STORY OF A HOUSE?

SIR,—Will you kindly allow me to thank the gentlemen who wrote me on the above, all of whom concurred in my view. The case came on before Mr. Dayman, on Friday in last week, who, before the hearing commenced, intimated that the decision would be against me. During the hearing I drew his worship's attention to the 23rd section of the Building Act (which refers to underground rooms), and read to him the written opinions of various London and provincial architects. Subsequently, the magistrate contended that I was in error in using the term "floor," and applying to it the same significance as "story," used in the Building Act. Mr. Marrable attended to give evidence in support of my view, but was not heard. The case was adjourned to the 7th of October, his worship having consented to consult the 23rd section, and read the letters. Kindly allow me to inform those gentlemen who wrote me, that it is my intention to send a written acknowledgment to each, on the letters being returned. Thanking you for your courtesy, I am, &c.,

J. E. KNIGHTLEY.

CHURCH-BUILDING NEWS.

Monkwearmouth.—The ceremony of consecrating a new church has been performed at Monkwearmouth by the Bishop of Durham. The parish is an extensive one, and accordingly a new church, or chapel of ease, for St. Peter's has been erected on a large piece of ground, containing about 1,550 square yards. The building has been completed, and is in length 104 ft., and in breadth nearly 48 ft. It has been dedicated to St. Bede.

Liverpool.—The new church dedicated to St. Stephen, and erected in Byrom-street, has been consecrated by the Bishop of Chester. The old church and its site were appropriated for the widening of Byrom-street. The new church contains 637 seats, of which 529 are in the body of the edifice, and 108 in a gallery which crosses the western end. The church is Gothic in style, of the Early Decorated character. At the south-western angle there is a tower with spire. The entrance arch is in the western gable. The church consists of a chancel and nave, without transepts. On the right of the chancel there is an organ chamber, occupied by an instrument from the Liverpool branch establishment of Messrs. Gray & Davison. On the opposite side is a vestry. There is an open roof, with panelled ceiling. The open seats are free. The pulpit is of stone, carved by Mr. Norbury, of Liverpool, who also executed the stone font and other carving about the church. The font, like the pulpit, has a border of flowers of architectural type. The reredos is of pitch pine, with Godwin's tiles introduced, by Mr. Ellis. The east and west windows are filled with stained glass. The west window is a rose one. The fourteen two-light windows of the nave are filled with ecclesiastical tinted glass, with stained glass in the headings. The windows were supplied by Mr. C. W. Camm, of Smethwick. The organ was provided by Messrs. Gray & Davison. The architects of the church were Messrs. Culshaw & Summers, of Liverpool; and the design has been carried out by Messrs. Grindrod & Hargreaves. The cost of the church and school—the latter situated in the basement beneath the church, has been 8,300*l.*, towards which upwards of 500*l.* are still wanted.

Hythe.—The parish church of St. Nicholas Newington-next-Hythe, has been re-opened, after extensive alterations. Three years ago, the late Rev. Tatton Brockman, of Beachborough, at his own cost, restored the chancel and north chapel, and, at his decease, left a sum of money to further restore the nave and north aisle. This has lately been accomplished. The church presents a very altered appearance; the old square pews have been removed, and open benches substituted. The walls have all been replastered, and the old stone groins cleared of whitewash. The roofs, formerly plastered, are now of wood, formed in panels. The old tie-beams and ring-posts are still visible from the church, and are cleaned and stained. The chancel ceiling is panelled in like manner, but takes the form of an arch. A carved oak pulpit, of the Perpendicular period, has been restored, and set upon a new base. The chancel is fitted with oak stalls, and the altar table, also of oak, is vested with a crimson velvet cloth, having frontal and super-frontal, worked chiefly by Mrs. Charles Shaw, from the architect's design. The works have all been designed by Mr. Robert Wheeler, of Tunbridge Wells, architect, and the church restoration executed by Mr. W. Vaughan, of Maidstone.

Wormingford.—The church of St. Andrew, Wormingford, has just undergone a restoration, at a cost of nearly 2,000*l.* The work has been carried out by Mr. Joseph Grimes, of Colchester. The three stained-glass windows in the chancel are all of them new. The principal one is the gift of the High Sheriff of the county. The subject of it is "The Last Supper." The north and south windows are also *in memoriam*. The church is paved throughout with Maw's encaustic tiles; and Messrs. Catchpool and Thompson, of Colchester, have supplied and fixed a new hot-water apparatus. A vestry has been added on the north side, and a new porch on the south side, the quaint old south arch having been repaired and fixed at the entrance to the latter. There are other minor alterations and improvements. There has been no formal re-opening of the church. The architect was Mr. Fred. Chancellor, of Chelmsford. We understand that new schools are shortly to be erected near the church, at the entire cost of Mr. J. J. Tufnell.

Luton.—In the gradual restoration of St. Mary's old parish church, Mr. E. O. Williams has, under instructions from Mr. John Shaw Leigh, of Luton Hoo, lord of the manor, adapted the remains of the carved oak and painted screen of the fifteenth century, formerly separating the chancel from the nave, which, though much mutilated, had been preserved. Rumour says that it was used at one time as a coal and coke bin. It now forms the base of a carved Gothic screen, between the south transept and the Hoo Chapel. The new roof over the chapel is a plain composition of oak main timbers, with deal soffit boarding and lead covering. The black flint and freestone chequer work of the outside repairs corresponds with the tower, and is thought to be more in accordance with the walling of the church generally than the plain ashlar of the east end. The town should show its appreciation of Mr. Leigh's liberality by putting up a stained glass window in commemoration of it.

Yafforth.—A new church has been consecrated at this small village, situate a mile and a half from Northallerton. A plan for restoring the old church was proposed; but owing to the bad state of a part of the walls, and the inconvenient narrowness of the building, it was abandoned in favour of erecting an entirely new church, for which designs were furnished by Mr. Pritchett, of Darlington, architect. Funds for the undertaking were raised, amounting to about 1,300*l.* The new church is in the Early English style, and consists of tower, nave, and chancel, with porch and vestry. The interior affords ample accommodation for the inhabitants. An east window of stained glass, by Messrs. Clayton & Bell, has been given by Mr. and Misses Masterman (who have also lately built and endowed a school in the place), and a side window by Mrs. Dobson.

Books Received.

"Art Pictorial and Industrial: an Illustrated Magazine" (Sampson Low & Co.) is the title under which the publication foolishly called "The Photographic Art Journal" is continued under improved arrangements. The distinguishing feature is the use of photographs as illustrations. In No. 3, just now published, there are six, including reproductions of an unfinished painting by John Phillip, a mild "Sampson and Lion" by Mr. Milnes, two very thoughtful little drawings by Mr. E. Vedder, and examples of Dormers by Mr. A. E. Browne. The latter would have been better made from the originals rather than from sketches. Mr. Blanchard Jerrold, Mr. Cordy Jeaffreson, and others, contribute papers.

Miscellanea.

South Staffordshire Hospital.—For some time past, says the *Wolverhampton Chronicle*, the board of directors of this institution, impelled by the necessity of increasing its accommodation, have had under consideration the best means of enlarging and improving the hospital; and a few months since they adopted a plan, and a builder's estimate for the execution of the work has since been accepted. A long-felt want which the hospital will supply when enlarged as proposed will be accommodation for fever cases, and for this purpose a new wing will be erected at the south-east end of the present building. Another important and essential part of the enlargement plan consists of a new out-patient department, which it is proposed to erect at the east end of the hospital, but entirely separate from the main building. Besides the new buildings, the plan comprehends several important alterations in the existing structure. The sum intended to be spent is about 12,500*l.* Some of the materials and the character of the work are required to be of a special character, so as to prevent such diseases as pyemia. In the construction of the accident ward Parian cement is to be used, which will involve an expense of several hundreds of pounds over and above what the ordinary material would cost. The floors are to be of oak. The buildings will combine all the improvements adopted in the most successful hospitals in this country and of France. Members of the committee, with the architect, have visited several of the best constructed hospitals in England. Funds are wanting to enable the committee to complete the good work. The architect is Mr. Bidlake; Mr. Horsman, who is now building the town-hall, is the contractor.

Roman Pavements.—Mr. H. S. Harland, of Sawdon Park, near Scarborough, has just made known the discovery of Roman remains at the village of Oldcoates, near Blyth, Notts, about four miles from Ranskill Station on the Great Northern Railway. Mr. Harland says the discoveries deserve more attraction from antiquaries than they are receiving. The pavements were discovered by accident by a workman, in digging a mortar-pit adjoining a new house erecting for the Catholic priest. The workman turned up part of the principal floor of a Roman villa, which has since been bared, and is found to consist of about 25 square yards of tesselated pavement, the tesseræ being about ¾-in. cube, of a brown and bluish colour on a white ground, the whole worked into an elaborate geometrical pattern, and having a rude representation of a (supposed) Roman warrior in the centre. This floor is about 1½ ft. below the natural surface. A second floor, supposed to be that of a bath-room, or hot-room, is still lower, and on the west, and is formed of tesseræ about ¾-in. cube, and all of white stone. The floor forms two sides of a square, and appears to have flues below it. At one part is a flagstone, or hearth, and near it was charred wood.

Street Tramways.—The invention of Mr. J. Livesey, Victoria-chambers, consists, first, in the formation of a permanent way for street tramways, the sleepers of which are constructed of standards of wrought or cast iron secured to iron plates, arranged so that the various parts shall come between the divisions in the pavement without offering any obstruction, and for the fixing of two standards on one base-plate; second, in the use of a section of rail having a projecting piece to form the groove for the flange of the wheel to run, and with pieces projecting downwards, in order to give greater vertical strength, and form a dovetail section, which admits of being secured without external fastenings, and also for a flat-bottom rail, having one side broader than the other for the purpose of forming a groove.

A Model Temperance Town.—In Bessbrook, a manufacturing town near Newry, in Ireland, there is no public-house. The town was founded by a Mr. Richardson, a member of the Society of Friends. He set up a spinning-mill, which now employs 3,000 hands; yet there is no public-house in the place; the working people are all sober and orderly; and there is not a policeman in the town.

Another London Theatre.—A new theatre is about to be erected on the vacant plot of ground formerly occupied by part of St. Thomas's Hospital, London Bridge. Mr. Strange, of the Alhambra, it is said, will bring his large experience to the new undertaking.

London General Omnibus Company.—The directors state in their report that the gross traffic receipts of the company during the last half-year were 268,216*l.*, and in the corresponding period of 1869 they were 270,926*l.*, showing a decrease of 2,710*l.* The number of passengers carried was 21,417,533, and for the same half of 1869, 20,157,926, showing an increase of 1,259,607. The number of omnibuses working on week days was 587 against 590, and on Sundays 469 against 460 in the same half of 1869. The average receipts per omnibus per week were 17*l.* 7*s.* 10d., against 17*l.* 9*s.* 7d., and the average fare received per passenger was 2·96d., against 3·17d. The directors found it necessary to introduce low fares for short distances in several new places during the half-year. The number of passengers had thereby been largely increased, but scarcely sufficient to make up the deficiency in amount of receipts; the loss, however, was more than made up by the new system of taxation on locomotion which had prevailed since the 1st of January last. A dividend at the rate of 10 per cent. per annum, free of income-tax, would absorb 29,886*l.*, and leave a balance of 6,014*l.* for the next half-year. The directors deemed it advisable to make arrangements for horsing the cars of the North Metropolitan Tramway Company from Bow to Whitechapel, and they had therefore entered into a contract for that service.

Free Library for Bilston.—At a recent meeting of the Town Commissioners, the chairman read a report from the Free Library Committee, stating that they recommended "that advertisements be inserted in the *Builder* and local newspapers, inviting architects to submit plans for a suitable building, the cost not to exceed 1,000*l.*" The chairman mentioned 20*l.* as a suitable amount to offer as a premium for the best plan, and said he thought it would be to the advantage of the town to have the works carried out under the direction of their own surveyor. The committee were empowered to advertise for plans, the successful competitor to be remunerated with a premium of 20*l.*, and the chairman was requested to convene a public meeting to consider the propriety of asking Mr. Mason to exchange the site in High-street for the one in Shale-street.

A Kew Graving Dock on the Thames.—A large graving dock has been lately completed at Blackwall Point, East Greenwich, and the first ship, the *Patriarch*, a large iron clipper, was placed on the blocks on Wednesday. The dimensions of the deck are:—Length, 400 ft.; width (extreme), 68 ft.; width at entrance, 60 ft.; depth of water at average spring tides, 21 ft. The dock is well situated for access from the river, and is convenient for vessels lying in the East and West India, Millwall, or Victoria Docks.

Manchester New Town-hall.—At a meeting of the new Town-hall sub-committee, held on Thursday, the 25th ult., at which tenders were submitted for the erection of the superstructure of the Manchester new Town-hall, the lowest tender, being that of Messrs. George Smith & Co., builders, of Great George-street, Westminster, amounting to a sum of 192,574*l.*, was accepted. There were eight tenders. Messrs. Smith & Co., as our readers know, were the builders of the Colonial-office and the India-house.

Fall of a Grand Stand at Leicester.—Several hundred persons assembled to witness a series of athletic sports and pony-races lately, at Leicester. Just before the pony-races were started, a stand, upon which were about 100 persons, fell with a crash to the ground. Its occupants were huddled in a mass, and several of them were seriously injured. In spite of the accident the sports were continued until the programme was completed.

Harrogate.—The foundation stone of a new manse for the pastor of the Congregational Church at Harrogate, has been laid. The manse is to be erected in the West-end Park, adjoining the Leeds-road. The land on which the house is to stand is freehold, the cost of which is about 300*l.* The manse will cost about 1,300*l.*

The Langham Hotel Company.—A dividend of 10 per cent. per annum has been declared. It is intended to build, on the western side of the hotel, billiard-rooms, a smoking-room, and from twenty-five to thirty bedrooms, at the cost of 40,000*l.*

Roman Rochester.—During the time the workmen have been engaged in making the excavations for the new corn exchange which is about to be erected in this city, many remains of ancient Rochester have been discovered. The most interesting of the discoveries hitherto made is that of a portion of what appears to be an old Roman wall, which was reached at a depth of about 8 ft. below the ground. Near the wall were likewise discovered several Roman coins, some of which are in a very good state of preservation.

The Charing-Cross Pier.—The Thames Conservators in their recently-published report state that the Pier at Hungerford, now called the Charing-cross Pier, has been completed by the Metropolitan Board of Works, but it has not been passed to the Conservators in accordance with the provisions of the Act of 1862, and this pier is now in the possession of the South-Eastern Railway Company; but the Conservators are taking proceedings, under legal advice, to obtain possession of it for the benefit of the public.

Sir Edward Smirke, on whom her Majesty has just conferred the honour of knighthood, is the fourth son of the late Mr. Robert Smirke, A.R.A., and brother of Sir Robert Smirke and Mr. Sydney Smirke. He was born in the year 1796, and was educated at St. John's College, Cambridge. He was called to the Bar at the Middle Temple in 1824, and was successively Solicitor-General and Attorney-General to his Royal Highness the Prince of Wales as Duke of Cornwall.

Statue of Mr. Gladstone.—The statue of the Prime Minister, in St. George's Hall, Liverpool, will be unveiled on the 14th of September. Invitations to be present on the occasion have been issued by the mayor (Alderman Hubback) to a number of distinguished men of science and others, who are expected to be in the town attending the meeting of the British Association, as well as to the subscribers to the statue fund.

Steam-Power Culture.—Mr. W. Smith, of Woolston, Bucks, reports that his fifteenth crop under steam culture compares well against horse culture, especially so the corn crop; and when, he adds, "we take into consideration the fact that I have no fallows whatever on my heavy clay land, the evidence is conclusive on the side of steam culture."

TENDERS.

For new Wesleyan Chapel, &c., Coltman-street, Hull. Mr. W. Botterill, architect. Quantities supplied by Mr. G. W. Renwell:—

Morrell	£7,615 0 0
Marshall	7,358 18 5
Tomlinson	7,270 0 0
Hockney & Liggins	7,221 12 0
Jackson	7,162 0 0
Sergeant	7,090 0 0
Hutchinson	7,079 0 0
Waller	7,005 0 0
Usher & Stamp	6,892 10 0
Musgrave	6,695 0 0
Scholefield & Taylor	6,693 6 0
W. & J. Hall (accepted)	6,528 0 0

Accepted for Congregational Church, school, parsonage, &c., at Ripon. Mr. J. P. Pritchett, architect:—

Mason's Work.

Wright & Sons	£1,962 17 7

Slating.

Kenet	153 16 0

Plastering.

Wright & Sons	132 10 0

Joinr's Work.

Macadam & Sons	1,105 15 0

Plumbing and Glazing.

Wilson	288 9 8

Painting.

Briggs	76 5 0

Ironwork.

Macadam & Sons	146 8 0

For church at Middleton One Row. Mr. J. P. Pritchett, architect:—

Mason's Work (including Tower).

Dodgson	£1,102 6 10

Slating.

Pattison	58 17 0

Plastering.

Ormerod	54 0 0

Joiner's Work.

Garget & Son	256 7 6

Plumbing and Glazing.

Johnson	90 0 0

Painting.

Dryden	55 0 0

Accepted for roads and drains required in laying out building land at Ripon. Mr. J. P. Pritchett, architect:—

Brumby	£409 0 0

For stable at Minster, in Thanet, for Mr. F. Cobb. Mr. W. Lane Sear, architect:—

South-Eastern Building Company	£198 0 0
Rogers & Son	180 10 0
Nash & Taylor (accepted)	180 0 0

Accepted for Romford Cemetery. Mr. E. C. Allam architect. Quantities supplied:—

Contract No. 1.—Draining.

Hayward	£457 0 0

Contract No. 2.—Oak Fencing.

Marshall	174 19 6

Contract No. 3.—Laying out.

Hayward	137 0 0

Contract No. 4.—Building.

Potter	1,694 0 0

For factory, Curtain-road, Finsbury. Mr. H. F. Bacon, architect:—

Turner & Son	£1,479 0 0
Conder	1,463 0 0
Woodward	1,425 0 0
Colls & Son	1,425 0 0
Higgs	1,423 0 0
Sharpington & Cole	1,363 0 0
Aitcheson & Walker	1,325 0 0

For St. Mary's Church, Primrose-hill, Hampstead. Mr. M. P. Manning, architect:—

Mann	£9,863 0 0
Hill, Keddell, & Waldram	8,965 0 0
I'Anson	8,620 0 0
Browne & Robinson	8,457 0 0
Longmire & Burge	8,443 0 0
Patman & Fotheringham	8,442 0 0
Sewell	8,356 0 0
Manley & Rogers	8,290 0 0
Henshaw	8,210 0 0
Patrick & Son	7,945 0 0
Sharpington & Cole	7,780 0 0
Dove, Bros.	7,555 0 0

For alterations and additions to the Rectory House, Shadwell. Mr. Ewan Christian, architect:—

Brass	£1,267 6 0
Jackson & Shaw	1,256 0 0
Sharpington & Cole	1,234 0 0
Ennor	1,185 0 0

For the erection and completion of two cottages at Cadishead, of six rooms each, with cellars and outbuildings, for Mr. Joseph Ashley. Mr. Sherwin, architect. Quantities supplied:—

Herd & Edie	£474 0 0
Cain	430 0 0
Davies	428 0 0
Lock	405 0 0
Cardwell (accepted)	395 0 0

For the erection and completion of a nine-roomed villa residence, with bath, w.-c., and outbuildings, at Hearon Chapel, for Mr. Thomas Leigh. Mr. Sherwin, architect. Quantities supplied:—

Webster	£638 10 0
Wade, Bros.	590 0 0
Atkinson	586 0 0
Burnell	567 0 0
Herd & Edie	553 0 0
Davies (accepted)	550 10 0

For alterations and additions to residence, Kettering. Mr. R. W. Johnson, architect:—

Wilson & Bellamy	£556 10 0
Briggs	500 0 0
Barlow & Butlin	498 0 0
Henson & Son	475 0 0
Sharman	462 0 0

For additions to Harborough Hotel, Melton Mowbray. Mr. R. W. Johnson, architect:—

Weaver & Barnes	£714 0 0
Fast	661 0 0

For additions to Barkby Hall, Leicestershire. Mr. R. W. Johnson, architect:—

Herbert	£2,211 16 0
Fast	2,199 0 0
Neale & Sons	2,149 0 0

For new stables, Craven Lodge, Melton Mowbray. Mr. R. W. Johnson, architect:—

Bromwich	£1,167 0 0
Holliday & Cave	1,047 0 0
Fast	1,030 0 0

For new Wesleyan Chapel and Schools, Melton Mowbray. Mr. R. W. Johnson, architect:—

Herbert	£3,015 0 0
Johnson	2,975 0 0
Willman	2,750 0 0
Barnes	2,699 0 0
Halliday & Cave	2,607 0 0
Fast	2,577 0 0
Perkins, Bros.	2,556 0 0
Stevenson & Weston	2,510 0 0
Weaver	2,490 0 0
Winkles & Kellets	2,399 0 0

For new Congregational Chapel, Tollington Park, Hornsey-road. Messrs. Chas. G. Searle & Son, architects:—

Greenwood & Sons	£10,341 0 0
Jackson & Shaw	10,259 0 0
Stimpson	9,868 0 0
Sewell & Son	9,803 0 0
Wicks, Bangs, & Co.	9,736 0 0
Higgs	9,712 0 0
Brass	9,694 0 0
Myers & Sons	9,643 0 0
Macey	9,320 0 0
Patman & Fotheringham	9,315 0 0
Dove, Bros.	9,190 0 0

For addition to warehouses, Calvert's-buildings, for Messrs. Wigans & Cosier. Mr. R. P. Pope, architect:—

Browne & Robinson	£1,796	0	0
Patrick & Son	1,769	0	0
Rider	1,589	0	0
Sharpington & Cole	1,535	0	0

For completion of six houses, Old Greyhound-lane, Fulham, for Mr. G. Baker. M. W. S. Sargeant, architect:—

Sholts	£994	0	0
Sergeant	972	0	0
Thorpe	839	0	0
Kerley	789	0	0
Brickell & Light (accepted)	775	0	0

For the erection of detached villa and boat-house, on the Grove Park Estate, Chiswick, near Kew Gardens, for Mr. Maynard, of Barnes, Surrey. Mr. W. S. Sargeant, architect. Quantities supplied:—

Braithwait	£2,000	0	0
Chamberlain, Bros.	1,931	0	0
Clark	1,800	0	0
Adamson & Sons	1,686	0	0
Gibbs	1,500	0	0
Thorpe	1,370	0	0
Sargeant	1,262	0	0
Brickell & Light (accepted)	1,125	0	0
Frewer	1,072	0	0

For new wing to Burlington Lodge, Brighton, for Mr. J. S. Smales. Mr. W. S. Sargeant, architect. Quantities supplied:—

Mathews	£1,362	0	0
Richards	1,270	0	0
Brickell & Light	1,220	0	0
Sargeant (accepted)	1,190	0	0

For Grammar School, Maidstone. Mr. E. W. Stephens, architect. Quantities supplied:—

Anscomb (accepted)	£3,821	0	0

Accepted for the completion of the Queen's Hotel, in Barnsley, for Mr. James Fox. Messrs. Wade & Turner, architects. Quantities supplied:—

Masonry and Excavating.

Walton & Lawton	£2,050	0	0

Carpenter and Joiner's Work.

Goodyear	849	0	0

Plumbing and Glazing.

Brown	368	0	0

Slating.

Brown	73	0	0

Plastering.

T. & J. Shaw	290	0	0

Painting.

Stephenson & Charlesworth	41	0	0

For the whole:—

Nicholson & Son	£4,370	0	0
Robinson & Son	4,020	0	0

For boilers, pumping machinery, and hot-water supply, at the St. Marylebone Schools, Southall. Mr. H. Saxon Snell, architect:—

Busby	£780	9	3
Gimson & Co.	756	0	0
Mackenzie, Bros.	704	0	0
Lambert & Sons	695	0	0
Fraser	687	0	0
Turner & Co.	662	10	0
Benham & Sons	656	0	0
Jennings	589	0	0
Potter & Sons (accepted)	579	16	0

For the erection of boiler-house and chimney-shaft at the St. Marylebone Parochial Schools, Southall. Mr. H. Saxon Snell, architect:—

Barker & Groome	£362	0	0
Nias	335	0	0
Nightingale	302	0	0
Eaton & Chapman	290	0	0
Heavell	280	0	0
Howard	275	0	0
Gibson, Bros. (accepted)	260	0	0
Woodcock	250	0	0
Parsons & Telling	237	0	0

For additions and alterations to Eastlands, Basingstoke, for Mr. Alderman Wallis. Mr. G. B. Mussellwhite, architect. Quantities supplied:—

Budden	£836	0	0
Pelham & Tigwell	797	7	9
Mussellwhite & Son	756	10	0
Pistell	743	18	0
Jennings (accepted)	741	15	5

For alterations and additions at No. 13, Baker-street, for Mr. J. Taylor. Mr. W. S. Witherington, architect:—

Mark	£260	0	0
Elkington	260	0	0
Robertson	255	0	0
Bamford (accepted)	227	10	0

For alterations and additions at No. 72, Edgware-road, for Mr. F. Bullock. Mr. Witherington, architect:—

Melville	£283	0	0
Scott	198	10	0
Mark	142	0	0

For new infection wards at Staines Union. Messrs. Walker & Elsam, architects:—

Bushell	£697	0	0
Sturgess	676	0	0
Oades	647	0	0
Harrison	630	0	0
Pither	626	0	0
Cook & Green	625	0	0
Cullum	600	0	0
Perry	580	0	0
Mole	560	0	0
Reavell	548	0	0
Nias	539	0	0
Farley	530	0	0
King	527	0	0
Hiscock & Son	527	0	0
Woodcock	520	0	0
Warr	475	0	0
Parson & Telling	417	0	0

For the erection of a factory, Long-lane, Bermondsey. Mr. Joseph Gale, architect:—

Colls & Sons	£4,520	0	0
Downs	4,389	0	0
Rider & Sons	4,368	0	0
Tarrant	4,227	0	0
Dove, Bros.	4,165	0	0
Ashby & Sons	4,057	0	0
Hill & Keddell	4,025	0	0
Browne & Robinson	3,907	0	0
King & Sons	3,870	0	0
Henshaw	3,858	0	0

For the erection of a warehouse in Holborn-bars, for Messrs. Richard Lloyd & Sons. Mr. W. P. Griffith, architect. Quantities not supplied:—

Perry	£2,010	0	0
Lidstone	1,998	0	0
Patman & Fotheringham	1,987	0	0
Webb	1,985	0	0
Clemence	1,975	0	0
Mansfield	1,950	0	0
Hart	1,915	0	0
Lawrence & Sons	1,832	0	0
Newman & Mann	1,756	0	0

TO CORRESPONDENTS.

A Town Surveyor (in numbering the houses of streets in the metropolis, the numbers begin at the end nearest St. Paul's Cathedral).—Clerk of Works (we cannot pretend to adjudicate *ex parte*. If a clerk of works does not clearly understand a drawing, he should obtain explanation from the architect. The duty of a clerk of works is to see that the architect's intentions are carried out; not to throw discredit on his drawings, or endeavour to prove him wrong).—J. W. Q. N. (not clear enough for publication. No information).—R. F. C. (photographs have arrived: a view shall be engraved).—A. H.—T. W.—J. L.—M.—H. T.—W. B.—G. P.—W. C.—R. T.—G. C. E.—H. D.—W.—S. & C.—N. H.—H. W. B.—S. P.—T. W. A.—W. S. S.—R. M. S.—J. E. W.—J. K.—G. J. H.—W. S. W.—W. & T.—C. & A. N.—H. S. S.—G. B. M.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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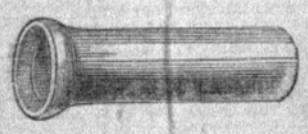

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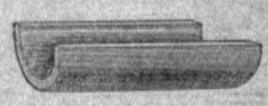

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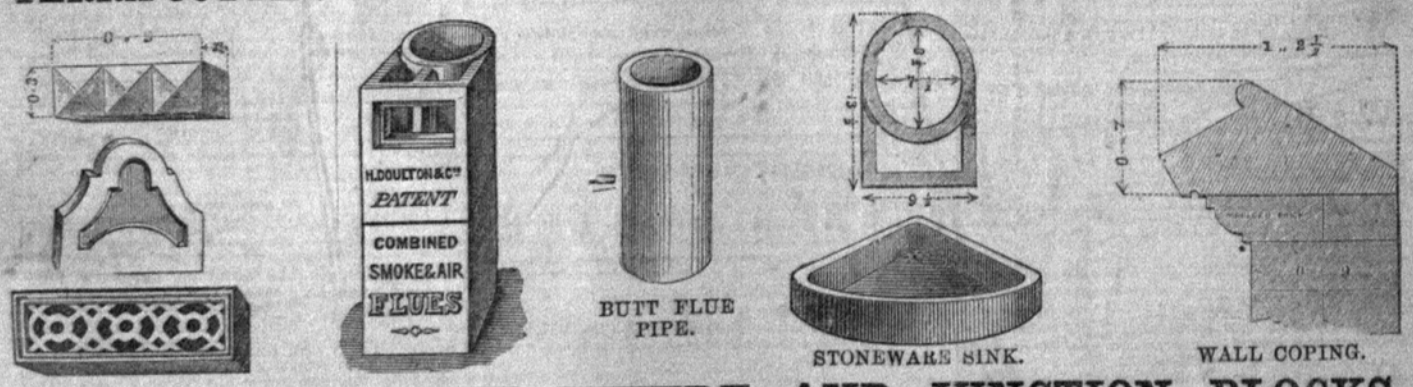

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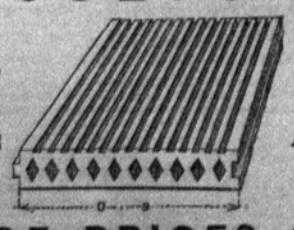

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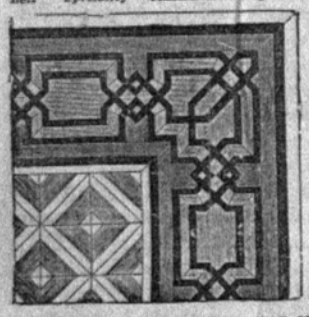

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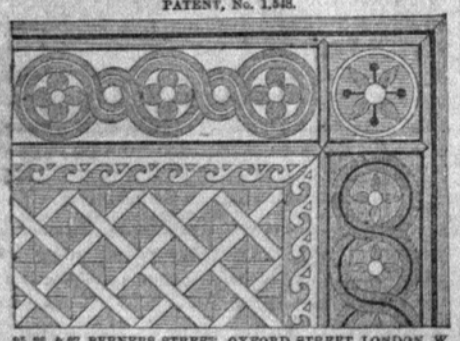

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VOL. XXVIII.—No. 1440.

What do we pay for Education?

THE advantages which man has over beast, in safety, in material comfort, in the means of protecting, prolonging, and enjoying life, are hardly greater than those which the cultured and instructed man has over the ignorant savage. Nor does this apply to individuals alone; nor need the contrast be limited to that between the philosopher and the barbarian. It is true in the case of nations. The harvest-moon of 1870 has witnessed the inscription, in letters of fire more terrific than those which startled the feast of the Chaldean king, of a warning that we can ill afford to neglect. Whatever be the outcome of the sanguinary campaign of the present summer, one lesson is plain. The primacy of Europe is not to be retained by the mere possession of the noblest or most brilliant qualities, in the absence of patient and conscientious culture. The steady application of the German race to the great business of education, for the life-time of two generations, has enabled it to give a new illustration of the ancient fable of the hare and the tortoise. But the once sluggish animal, in this instance, emulating the wonderful metamorphose of its relative, the frog, has developed the wings of the dragon.

Not less ominous, to those of us who have known how to read contemporary history, than any phenomenon of the day, has been the persistent manner in which, for the last eighteen years, the mind of France has been studiously misdirected to the cultivation and the increase of luxury. A display that no honest earnings could afford, has been kept up by systematic corruption, and, at the hour of extreme need, the noble army of France has collapsed for want of the due application of that supply which, freely voted by the nation, has been diverted to the service of the *demi monde* of Paris. When a nation thus purposely demoralised comes in contact with a patient, self-cultivating, honestly working community of equal magnitude, the result cannot long remain doubtful. No gifts, however divine, profit those who neglect to cultivate them.

What, then, every Englishman ought to ask, are *we* doing to maintain our own national dignity? What is our organisation, compared with that of our German cousins on the Continent? What is our education, compared with that of educated Prussia?

A report from that fraction of our complex administration which replaces, clumsily and inefficiently enough, the Ministry of Public Instruction which is common to most civilised countries, has just issued from the press. The Lords of the Committee of her Majesty's Privy Council on Education have humbly presented to her Majesty their "Report of the Science and Art Department for the year 1869." From this document, and from the "estimates for the Civil Services for the year ending March, 1871, Education, Science, and Art," we must strive to draw a reply to so momentous a question.

The first point, however, that strikes an inquirer, who notes that somewhat less than a fortieth part of our public expenditure is devoted to educational purposes, is, that the administrative action only scratches the outside of the subject, instead of piercing to the centre. We are not speaking of the direct action of the State in training those who are to form its citizens; but of the yet more primary and elementary duty of collecting information on the subject. Where are we to turn for knowledge as to what is actually being done in the United Kingdom by way of education? What do the Lords of the Committee of her Majesty's Privy Council observe on the subject? What does any one know?

Thus much, indeed, we have been told and told again, in and out of Parliament, in reports, by inspectors, in blue books, and, ugly fact, in certain trade returns and commercial bargains. We are not doing what we ought to do. We are doing far less than our neighbours. So admitted is this fact, that we are now voting hard upon two millions sterling to supplement the grievous deficiencies of our general method of education. But we are yet left almost totally in the dark as to the extent, the resources, or the upshot, of that national system, if system it may be called, which has so notoriously broken down.

The wisdom and the piety of our ancestors have consecrated, from time to time, no inconsiderable part of the national wealth to the purposes of education, regarded in its broadest sense. The church, to be in any way fitted for the wants of the day, should be a great educational institution. To inculcate dogma, which men seem to take as the essence, is but a very minute portion of the duties, of a religious organisation. There are many who hold that, the more there is of true religion in a community, the less there will be of dogma. At all events, few of those who are familiar with history, past or contemporary, will deny that the converse proposition holds true. The teaching and training of the entire nation, boys and girls, men and women, the true "mathematics," the general course of all that is to be learned—in morals, in science, in the natural history of nations—that great primer of political science,—all this is the function for the performance of which churches were endowed, at a time when the sum of human knowledge was comparatively trifling, even by the side of its present very imperfect state.

We do not insist upon that care to relieve the poor, to visit the sick, and generally to supplement the words of truth by the acts of mercy, which formed charges on the resources of the mediæval and of the primitive churches. The point we wish to bring into relief is this: we have a very large annual sum,—in land, in charges, in rates, in Parliamentary votes, in private subscriptions,—professedly applied to the education of the people. We cannot but be aware, from the results, that the application has not been as successful as could be desired. We know that the very gravest questions press for solution as to the primary principles on which such application should be made. And yet we are content to remain without that statistical information which is the very first requisite to enable us to understand our position; to say nothing whatever about improving it. We now offer some two millions a year to eke out a very deplorably deficient self-acting, or rather non-acting, system of education. But whether two,—or twice two,—or ten, or what number of millions are spent on the duty which we thus largely supplement,—who is there to tell us? We only know the educational state of England by its fruit, or rather by its marked absence of fruit. But we know that there was an old idea that some tenth part of the national income should be devoted to what are now called educational purposes; and we have a very shrewd guess that an enormous annual outlay must be, at this moment, perilously ill-directed.

Could we sum in one full line the annual income of universities, churches of all denominations, hospitals and charities, colleges, and schools, we should have no occasion to blush for the figure. That for which we should blush is, that we spend so much, and have so little to show for it. To know what we actually do spend in the teaching and training of the nation is a primary and imperative need.

Reverting to that partial information which is furnished by the Report of the Science and Art Department of the Committee of Council on Education—that is to say, of Lord de Grey and Ripon and Mr. Forster, with Mr. Cole as secretary,—we are happy to find that a suggestion, which was, we believe, first published in our columns, has been carried out in the present volume. Maps of England and Wales, of Scotland, and of Ireland, are contained in the Appendix to the Report, which show, by red and black dots (complemented by ill-devised lettering), the localities in which schools are now existing in connexion with the Department.

The expenditure reported for the financial year 1869–1870 (exclusive of the vote for the Geological Society) was 201,552*l.*, being 2,851*l.* more than that for the previous year, which amounted to 198,701*l.*

The approximate total number of persons who have availed themselves of any of the different means of obtaining instruction afforded by the Department in 1869, is 2,372,000. This is an increase of 596,000, or 33½ per cent., over the corresponding total for 1868, which was 1,775,400. But as a mere stroll through the South Kensington Museum counts for one of these instances of information obtained by the public, we must not attach too much importance to the educational profit derived by this million and three-quarters of people from the labours of the Department.

The total number of visitors registered as attending the South Kensington Museum during the year 1869 is 1,043,654, against 881,076 in 1868. The total monthly average has risen from 73,423 in 1868, to 86,971 in 1869, and this notwithstanding the regrettable circumstance that the attendance on student days has declined from the monthly average of 9,542, to that of 9,154. In 1867 the students' monthly average was 10,843. The attendances in the holiday weeks of 1869 have been far larger than in any previous year, amounting to 54,354 for Easter week, 40,868 for Whitsun week, and 51,259 for Christmas week, against the respectively corresponding numbers of 35,241, of 27,591, and of 48,037 in 1868; and of 26,594, of 22,557, and of 21,790 in 1867.

The number of persons receiving instruction in science applicable to industry, under the auspices of the Department, has increased from 15,010 in 1868 to 21,500 in 1869. The number of individuals instructed in art has increased from 123,562 in 1868 to 157,198 in 1869, or at the rate of 27 per cent.—the increase in the science schools being upwards of 43 per cent. The Royal School of Mines numbers only seventeen regular and ninety-three occasional students; the Royal College of Chemistry, 136 students; the Royal School of Naval Architecture, forty; and the Metallurgical Laboratory, thirty-five. The evening lectures have been attended by 1,617 artizans and school teachers; and 253 science teachers attended the special course of lectures provided for their instruction. There have been thirty-two students at the Royal College of Science, in Ireland, and 5,773 persons have attended the various courses of lectures delivered in connexion with the Department in Dublin. The attendance at the evening popular lectures delivered in the Edinburgh Museum of Science and Art during the Session 1868-1869 was 1,386.

Thus the total number of persons who have received instruction as students, or as attendants

upon lectures, in connexion with the Science and Art Department in 1869, is upwards of 187,000; a total exceeding that of the preceding year by 41,300, or 28 per cent. The increase in 1868 over 1867 was about 18 per cent.; so that the rate of progressive increase, as compared with the former year, shows an acceleration of more than 30 per cent. The general march of the public scientific and artistic education of the country may be readily appreciated from the above statistical summary.

To the above-stated sum of 201,552*l.*, increased, in the Parliamentary estimates, by the addition of the geological survey, to 218,336*l.*, have to be added some other items of educational cost for Great Britain, and four items for Ireland, in order to make up the annual sum paid by the nation for education other than elementary. These items are as follow:—British Museum, 90,765*l.*; National Gallery, 16,181*l.*; National Portrait Gallery, 1,800*l.*; Learned Societies, 12,370*l.*; University of London, 9,577*l.*; Endowed schools commission (which is an administrative rather than an educational charge), 12,220*l.*; Universities, &c., in Scotland, 18,644*l.*; Board of Manufactures, Scotland, 2,100*l.*; Irish National Gallery, 1,990*l.*; Royal Irish Academy, 1,684*l.*; Queen's University, 3,240*l.*; and Queen's Colleges, 4,265*l.* Oxford and Cambridge, as endowed universities, do not figure in this list. The total annual outlay thus incurred amounts to 393,072*l.*

With regard to elementary education, the sums voted for the year 1870-71, amount to 914,721*l.*, for Great Britain, and to 381,897*l.* for Ireland. A comparison of these sums with the population of the United Kingdom gives some noteworthy facts.

The number of children in Great Britain between the years of 3 and 15 may be taken, in round numbers, at 7,000,000. (The census of 1861 gave 6,323,566.) Of these, 1,300,000 are between 3 and 5; 3,000,000 between 5 and 10; and 2,700,000 between 10 and 15 years of age. Of the 4,300,000 below 10 years old, 493,852 were presented for examination under the standards in 1869. Of the 2,700,000 children from 10 to 15, 310,213 were so presented. The total number of children over six years of age that were qualified for presentation in this period was 991,449. The total number of children on the school-books for the year was 1,797,388, and the average number actually attending school was 1,245,027. Thus our public primary education may be said to contemplate the training of one-fourth, to attempt the training of one-sixth, and to effect (more or less satisfactorily) the training of one-seventh, of the children below 15 years of age. The cost of this education amounted, for the year 1869-70, to 840,711*l.*, being at the rate of about 17*s.* 3*d.* per head for the children actually taught, or of 12*s.* 8*d.* per head for the average attendance on the schools. This, of course, is only that portion of the expense which is directly borne by the State.

The vote for the year 1870-71 for public education is 914,721*l.* An annual increase may be reckoned on; so that we may speak of our current State provision for primary education as involving an annual expenditure of a million, in imparting the simplest rudiments of instruction to one million and a half out of our seven millions of children. Of those so instructed, moreover, three-eighths are of an age fitted to receive not primary, but secondary, instruction.

Our national influence over the training of the 2,700,000 children between ten and fifteen is at present confined to the operations of the Science and Art Department of the Committee of Council on Education. The expenditure of this Department in administration, grants in aid to schools, and expenses of circulation, was 109,775*l.* for 1869-70, and will rise to 123,902*l.* in the current year. The number of persons receiving direct instruction in the Science and Art schools (exclusive of the other educational establishments before cited) for 1869 was 178,698*l.* The national cost, therefore, of this portion of secondary education, of which between a fourteenth and a fifteenth part of the youth adequate to receive it have availed themselves, has been at the rate of about 12*s.* 4*d.* per head. As an economical application of funds, there is nothing to be said against these figures. The question of efficiency is distinct. That of numbers may be called appalling.

With reference to superior education, the institutions supported by the votes contemplate rather the prolonged pursuit of some special branch of study, than the general culture of the student,—a point which is not, so far as we are aware, attempted in any of our civil establishments.

The Royal College of Science, Dublin, received, in the year 1869, thirty-two students. Its cost was 6,800*l.*, being at the rate of 212*l.* per student.

The cost of the Royal School of Mines, the Royal College of Chemistry, and the Metallurgical Laboratory, in Jermyn-street, for the same year, has been 10,692*l.* The total number of students, regular and occasional, in these institutions, has been 281, at the rate of 38*l.* per head.

The cost of the Royal School of Naval Architecture for the past year was 2,175*l.* The number of students, forty; the rate, 54*l.* per head. The partial education, therefore, of 353 students, at a cost of 19,667*l.*, is the amount of our public education of a high technical order, offered to such of our 2,700,000 youth as it may accommodate. The youth of Ireland, indeed, are not included in the returns.

Thus the United Kingdom, out of an annual public income of some seventy millions sterling, contributes less than a million towards the primary instruction of the seven millions of British children. It contributes 120,000*l.* towards certain branches of secondary education, which, in more highly-cultured countries, are made obligatory on all young persons, but of which, with us, (exclusive of private tuition) 180,000 out of 2,700,000 avail themselves; and it contributes 20,000*l.* towards a fractional superior education, which is shared by 353 students. To the support of learned bodies, London, Scotch, and Irish universities and colleges, it contributes 50,000*l.* per annum. Museums and galleries receive the subsidy, not excessive *per se*, but disproportionably large in comparison with the more directly educational expenditure, of some 180,000*l.*; and this, together with 380,000*l.* for the primary education of Ireland, makes up the annual outlay, provided by the State, for educational purposes. For the rest, we have to trust to the operation of the law of supply and demand, to the much vaunted efficiency of the voluntary system, and to the working of those varied institutions, originating in the piety of the past or the speculative energy of the present, as to most of which, it is so foreign to our national habits to require or to possess any definite or synoptic information.

AMONG THE LINCOLNSHIRE CHURCHES.*

NEARLY every one is familiar with the general outline and design of the noble tower and octagon lantern of Boston Church, to which an interest of another kind has been added, also, by its connexion with Jean Ingelow's best poem, "High Tide on the Coast of Lincolnshire," where we are told how the Boston bells rang out the tune of "The Brides of Enderby," to warn the country folk of the advance of the "stolen tide;" but the statement that—

"The old mayor climbed the belfry tower"

(340 steps, to wit) must surely be taken with limitation, unless he were an exceptionally active old gentleman. Of the grand, almost cathedral-sized church, one need only observe that it is well preserved and rich in detail, of a late date externally, and that the effect of the interior is somewhat marred by a wooden vault to the nave. The western tower, separated from the nave by a remarkably lofty arch, and open nearly to the top, with its ties of lofty windows, is as fine internally as externally. A remarkably elegant specimen of metal-work in the shape of a communion-rail of *Classic* design, should not be overlooked by the visitor to this church. Proceeding by rail to Sutton *vid* Spalding, we must pass rapidly over the salient points of the fine range of churches between the two last-named places. Sutton has a fine simple timber broach spire, which has been imitated more than once, if we mistake not, by modern church-builders, the nave piers and triforium, of late Norman, or rather transitional work, are of interest, and afford one among other instances of the round arch being retained, for constructional purposes, in smaller churches some time after its disuse in the larger arcades of the cathedrals. Gedney is remarkable mainly for its grand tower, chiefly of lancet date (the upper stage only being rectilinear), and affording another instance of the fine and expressive effect produced in the early Gothic towers by the mere play of surface and outline obtained by buttresses, stair turrets, &c.; all the rich decoration of some of the later towers will scarcely enable them to compete with these truly masonic designs. The nave is very late, and shows the thin walls (in this case not projecting beyond the line of the piers) characteristic of late work; the roof is a fine one, and a good instance of the variety of effect often produced in roofs of this date by the alteration of roof-principals of two different designs; and there is some very good flowing tracery (curvilinear) of rather exceptional design in the north aisle windows. Fleet, again, is chiefly remarkable for its tower and spire, standing apart from the church, and known to many from the engraving in Brandon's "Parish Churches;" in the church are eight carved heads, corbels at the springing of the roof timbers, of remarkable spirit and variety of design, and (so far as we know), hitherto unpublished. The well-known church at Holbeach, some of the windows especially of which have been so often figured as fine specimens of curvilinear tracery, is now undergoing an internal restoration, as far as the nave is concerned, under the direction of Mr. Christian; the much-worn masonry of the fine nave arcade piers having been cleaned and renewed where necessary, and a new timber roof of corresponding style placed over it. The chancel and the south porch are among the best portions of this church; and the unusual form of west doorway, with groined soffit, and gable cutting into the window above (the window also being of exceptional design), is worth notice, though very late work. A warning to church restorers is stereotyped in the north doorway, where the arch mouldings, originally very good, have been gone over and smoothed down by some careless hand in such a manner as to remove the fillets from the face of rolls, leaving as a residuum a sort of nondescript moulding. This achievement, we believe, is long previous to the present restoration.

From Holbeach to Whaplode: we can concentrate all our attention on the churches this journey, for truly the country itself is uninteresting enough; but Whaplode is a reward for a dull drive. What could be done with the Norman style in a small church is shown here by the eastern part of the nave, with its chancel-arch decorated with zig-zag and pellet and horseshoe ornaments, and its piers and caps each differing in section and in design, some of the caps showing the *hollow* cone ornament, which is believed to have had its origin in Wales, though met with occasionally elsewhere. Some of the piers here are actually thicker than the wall above them (which is of the same date), the caps projecting far beyond the archivolt springing. The western part of the nave is of transitional date, the caps of the piers just blossoming into stiff, but highly effective, foliated ornament. Taken altogether, this nave is an epitome of the progress from the complete Norman towards the realisation of Gothic feeling, even the older portions being in such sharp preservation of line and surface as would almost seem at first sight to discredit their undoubted antiquity. A fine tower of transitional date adds a further interest to one of the most complete and interesting relics of the period when our peculiarly national architecture was beginning to struggle into form and life. Moulton Church, mostly transitional in style, takes us a step further in this respect, especially as regards pier sections and carved capitals; and in the late transitional church of Weston, further on, we find the same progress continued, the three churches having very probably been built successively in the spirit of rivalry so prevalent among the Mediæval builders, and affording a remarkable opportunity for the study of the development of that beautiful feature in architecture, the Gothic capital. The chancel arch and capital at Weston are among the most beautiful, in moulding and design, that could well be met with on so small a scale; and amid work of later date, the rectilinear tower and spire at Moulton should not be overlooked. We conclude our survey with the large and only church in the apparently active and wideawake town of Spalding. This church is remarkable in plan, having four aisles, or rather four and a half in the nave, and a side aisle to each of the transepts; remarkable also for the almost total absence of carved ornament of any kind in an edifice so large and of such "good" date (latter half of thirteenth century). The mouldings, too, are of the simplest, and rather tame in character, though, owing to the solidity of the masonry,

* See pp. 678, 690, *ante*.

and the remarkable perspective effects given by the plan, the general internal aspect of the building is very fine. The centre aisle of the nave was formerly the same height as the transepts; but, at a subsequent period, the nave piers were raised 6 ft., the arches being taken down and rebuilt at the new level. The roof is a fine piece of late timber-work, with carved angels with outspread wings on the hammer-beams, and a deep moulded and carved cornice. For the benefit of our musical readers (of whom we hope there are many), it may be mentioned that Spalding Church contains a very fine organ, of three "manuals," recently added to and retouched by Hill; and at Whaplode there is a little organ of some interest, not only on account of intrinsic good quality, but as being, in great measure, the work of the amateur hands of (if we understood rightly) a former incumbent. Most of the other churches mentioned contain only what our Scottish neighbours might rightly term "kists o' whistles."

Of course, such a near vicinity suggests a flying visit to Peterborough, only nominally beyond our Lincolnshire limits. Has the celebrated west front been possibly a little over-praised by those critics who have called it "the finest in Europe"? The conception is a remarkable one, no doubt; it may be owing partly to the blackened state of the stone that the great arcade scarcely shows its real size (losing its light and shadow tints), and seems less grand in reality than it appears in some illustrations; and the section of the jamb mouldings, a series of circular shafts of nearly equal size, placed at an angle of 45° with the wall plane, is not the most effective either for shadow or for giving scale to the design. We are not questioning the title of the façade to high admiration, but only to the supremacy among façades claimed for it by some critics. This front again illustrates the influence of rivalry in stimulating architectural achievement, the present design having been clearly added as an afterthought in front of the originally proposed termination, in order to "cut out" the transitional west front of Ely, then just completed; just as the present Lady Chapel, with its late and completely developed fan-groining, was substituted for the earlier one adjoining the north transept, in order to outdo the Ely Lady Chapel built just before, and in which the fan-groining has not quite reached its final development. The general design of the grand Norman arcades of the interior is familiar to every one; as at Lincoln, the vaulting-shafts (or rather roof-shafts) in the choir have been cut away and stopped to make room for the stall-canopies, perhaps in the fifteenth century; the "stopping" being effected by cutting away the heavy Norman shafts nearly to a point against the wall, and finishing each with a small delicately carved head; the effect of these little faces, scarcely more than 2 in. across, thus introduced into the midst of the massive comparatively uncouth Norman work, is most curious and piquant. The present stalls, by Blore (some thirty or forty years since), are admirable specimens of "restoration" work of that period; and the recent colouring on the ceiling and on portions of the walls of the choir, executed (we believe) under the direction of Mr. Gilbert Scott, is very harmonious and pleasing in effect, excepting the figures of Christ and the Apostles on the ceiling over the altar, which are in that archaic style against the revival of which we have again and again protested, and which has not the slightest necessary connexion either with modern church art or modern Christian worship. The colouring on the walls, be it said, is confined to flat surfaces; mouldings are not touched by it, and it is to be hoped will not be. The ruined hospital and chapel to the south-east of the cathedral should be inspected, as the remains of fine Geometrical work, and instancing the application of three-aisled buildings to other than strictly ecclesiastical purposes. We cannot however, on this occasion, linger longer over Peterborough, and will quit it with a word of appreciation for the careful and satisfactory singing of the choir: much better, certainly, than that at Lincoln.

What lesson is suggested to the architect by such a rapid review as we have been making of a number of churches of different periods of Gothic art? A good many, probably; but this one in particular—the only one on which we will here insist,—that of designing in strict relation to the properties of your material. We should be inclined to call this one of the most remarkable characteristics of early Gothic art. Taking one feature, the capital; we find, in the Norman period, and up to the climax of the style, in the Geometrical period, ornament which precisely demands stone for its effect, and which could have been so easily and so effectively worked in no other material. So with larger features; the early lancet towers, for instance, which are emphatically masonic designs. It is only in later Gothic that we find panelling in stone, buttresses cut in wood, features used in contradiction to the material in which they are executed. Is not this relation between design and material the secret of the remarkable preservation in which older work is often found, in comparison with later? In our modern Gothic churches we often find most beautiful and delicate naturalistic carving, in comparatively soft stone, but of a type which would be better suited to wood-carving, and which has certainly little chance of lasting, in Bath or Caen stone, to be studied by the architects of five or six centuries hence. The early Gothic architects considered that in stone they had a granulated material, most effectively and most durably worked in large rounded projections and hollows, leaving plenty of breadth of surface. Their design almost grew out of the nature of their material. To the modern designer, whether he work in stone, wood, or iron, we say, "Go thou and do likewise."

Those who accompanied the excursion we have been making notes of, will feel that such notes would be incomplete without a word in recognition of the time and trouble so liberally given by the distinguished archæologist and ex-architect who suggested and organised it. Those who have gained a life-long experience in any branch of study, can hardly be more worthily employed than in giving to the younger generation some of the results of their acquired knowledge; and the valuable assistance and information given on this occasion to a number of the junior members of the architectural profession, calls for more than the merely private tribute of respect and regard which, we believe, Mr. Sharpe has already received from those who enjoyed the pleasure and profit of visiting the Lincolnshire churches in his company.

NEW PUBLIC BUILDINGS IN BARNSLEY.

ALTHOUGH the building trade in Barnsley cannot be said to be so active as it was a few years ago, there is, nevertheless, a fair quantity of work for the builder. Several large public buildings are either being erected or renovated. The introduction of the Midland system into Barnsley has not only given to the public a far superior station and a new county court, but the promise of a commodious and healthy station, in place of the present filthy structure which is owned by the prosperous Lancashire and Yorkshire Railway Company. The present county court, which has only been erected for a few years, being required for the purposes of the railway company, a new erection is going on at the top of Regent-street. The building is of a very substantial appearance, and when fitted up will combine all the requisites usually looked for in an erection of its kind. Mr. Sorby is the architect; the contractors being Messrs. Nicholson & Son, of Leeds.

The Beckett Dispensary, which was erected a few years ago through the munificence of the late Mr. J. S. Beckett, of Torquay, is being considerably improved. Another building of about the same area as the first erection is being built by Messrs. Nicholson & Son, at a cost of something like 4,000*l*. The structure, which is of brick with stone facings, will supply a long-felt want to the town and district in the provision of infirmary accommodation, which, to a mining and manufacturing community, is one of the most essential boons which can be placed at their disposal in case of accidents, which are of daily occurrence. The architect is Mr. Woodhouse, of Bolton, and the work, which is progressing satisfactorily, is being carried out under the superintendence of Mr. Amos Taylor, of the firm of Messrs. Taylor & Son, architects and surveyors, Barnsley.

The renovation of St. Mary's Church, which is fast progressing towards completion, has occupied the attention of the contractors and architect for some time. The structure (with the exception of the tower) owes its construction to the years 1820 and 1821. The interior, which is being renovated, measures 102 ft. by 61 ft., and was built at a cost of 12,000*l*. The whole of the galleries have been removed, together with the old square pews, and in their stead open stalls are to be constructed. The interior generally has been renovated, and a vestry or recess, which was approached from an outer door, thrown into the church. A stained-glass window is to be placed in memory of the late Mr. J. S. Beckett, whose munificence has been before noticed. A stained-glass window is also being placed in the tower, which was built in the early part of the fifteenth century. The work has been placed in the hands of Mr. Bodley, of London. Messrs. Robinson & Son, builders, are the contractors for the mason work. Mention may also be made of several buildings, which, although not in the course of erection, must shortly follow in the train of public improvements. A commodious town-hall is greatly needed by the corporation, which has recently claimed and become enrolled amongst the boroughs of Yorkshire. The whole of the business of the borough is transacted in the court-house, which was constructed in the year 1833, by subscription and out of the rates.

Public baths and washhouses are about to be erected by the town, a site having been promised by a gentleman largely interested in the welfare of the borough. As before intimated, a new railway station is also arranged to be built by the Lancashire and Yorkshire Railway Company.

The erection of cottage property, although not so large as it was a short time ago, is still progressing, and a good many buildings have been put up during the present summer.

Several pieces of land have been laid out as building plots, and it is believed that the Shaw Lands, which were left for certain charitable purposes, about forty-two acres in extent, will be laid out, so that, should trade flourish and commerce deal out her customary blessings, the building trade of Barnsley will be at least moderately active for some time to come.

AMERICAN SHIPPING: NEMESIS.

FROM the time of and since the war, the Americans have gone in strongly for "protection," particularly in so far as the iron producers and manufacturers of iron are concerned. They have imposed duties almost prohibitory upon all kinds of iron and iron manufactures, from pig-iron to penknives, from scrap to steel springs, and the range has, of course, included the kinds of iron bolts and parts of machinery required in the construction of ships. The pressure brought to bear upon Congress recently has induced a relaxation of the tariff. The import duty upon wrought scrap iron has been reduced from 8 dollars to 5 dollars per ton; on cast scrap iron from 8 dollars to 6 dollars; and on pig-iron from 9 dollars to 5 dollars. To effect these reductions the free traders had to undergo a severe encounter with the protectionists, who insisted upon higher rates. The figures determined upon are a compromise. The sorts we have named do not materially affect the materials required in ship-building, and a renewed and continued fight may be expected between the shipping interest with others doubtless, and Congress, with a view to a relaxation of the tariff, and much need there is for such a change. Before the duties just referred to were reduced the dues stood thus: — Pig iron, 1*l*. 17*s*. 2*d*. per ton; refuse scrap, 1*l*. 13*s*. 2*d*.; Russia admitting pig, bars, and scrap, at 10*s*., and half a dozen other European countries admitting pig iron free. For parts of machinery, the United States impose an import duty of 9*l*. 15*s*. per ton, or four times the rate of some European countries. On some of the finer manufactures of iron and steel the import duties are almost fabulously high. Needles for sewing-machines, for instance, are charged 4*s*. 2*d*. per thousand, and, in addition, 35 per cent. *ad valorem*. Penknives and other knives, 50 per cent. *ad valorem*. Steel pens, 5*d*. per gross, the full value at the works, and 25 per cent. *ad valorem*. Files, rasps, and floats are charged with an import duty of 45*l*. 16*s*. 8*d*. and 27*l*. 13*s*. 4*d*. per ton, as they may be under or over 10 in. in length, and, in addition, 30 per cent. *ad valorem*. Screws are charged 50*l*. 13*s*. 4*d*. and 37*l*. per ton, and, in addition, 35 per cent. *ad valorem*. There is no tariff in existence, that we know of, as severe as that of the United States with regard to the metals and metal manufactures produced by the United Kingdom. It may be mentioned here that we take twenty millions sterling more of their productions than they do of ours, the figures being, as near as may be, imports from the United States 45,000,000*l*., exports to the United States 25,000,000*l*.

The protection shoe pinches; the effect of the screw put upon the shipping interest during the war, and of the severe tariff, has been to extinguish, as nearly as possible, the American mercantile marine and the American ship-building interests. The laws of the Union forbid would-be ship-owners from buying foreign-built ships, and registering them under the United States' authority; and the tariff prevents them from building new vessels. The days of timber-built vessels, they probably think, are over; and the customs charges upon the materials used in building iron ships render it utterly impossible for them to compete with European builders: hence it is that the stars and stripes, once so common on ships in the Thames and the Mersey are now rarely to be seen. The American would-be ship-owners are exasperated by the circumstance that their laws shut them out completely from participation at the present time in the ocean-carrying trade of the world, the greater part of which will fall to the ship-owners of the United Kingdom, who have amongst them a larger mercantile navy than all the rest of the world put together.

The ship-building yards of Boston (where there are about thirty), New York, New Jersey, and Newbury Port, are all silent and deserted. The yards on the Thames are not as busy as is desirable; but they are not all quite silent. On the Wear, the Tyne, the Clyde, and even on the Tay, there is the healthy clangour of ship-building industry. The remedy for the depression demanded by the Americans is that Congress should pass an Act to admit all articles required in the construction or repair of ships, and ships' stores, duty free. The shipbuilding art seems to have been destroyed, not by the protection given to *it*, but to the Pennsylvanian ironmasters. A shipbuilder writes in the *New York Times*:—"For seven years there is not a ship-carpenter that has had work enough to teach a young man the business; and it is now a fact that it is almost an impossibility to get any first-class ship-carpenters to build ships. Those that are in the navy yards are so slow that they are of but little use to outside builders. I am confident that we cannot build up our mercantile marine with any aid we can get from Congress." The editor of the *New York Times* laments that for the first time in a generation an opportunity is offered to the American people of recovering an immense business once enjoyed by them—the carrying trade with Europe. He deplores the fact that the American mercantile marine is disappearing from the ocean, and that instead of their adding 500,000 tons a year to their shipping, as they did from 1827 to 1857, they are not building 50,000 tons a year. The Americans consider that the European complications have laid the carrying trade of the world at their feet, but they cannot take it up,—have given them a splendid chance that they cannot grasp.

They have no misgiving as to their ability to compete with English ship-builders, provided they had free imports. They would beat the English builders, they believe, in "the more ingenious use of labour-saving machinery," and otherwise; but confessedly, as matters stand now, they have no chance of existence in ship-building. An attempt was made recently at Chicago to build an iron vessel for the grain trade of the upper lakes. The import duties on the materials were found to range from 38 to 66 per cent., and the project was abandoned. There is not now a single American ocean steamer on the seas, among the 130, or more, that ply to and from United States ports. It may be hoped that those interested in the American ship-building and shipping trades may cherish a fellow feeling which may make them wondrous kind to others who are oppressed by the heavy burdens imposed upon the American people, and those who are willing to serve them, by their Old World and unwise tariff, and that the result may be its modification in the direction of a free exchange of productions.

The Manchester Surveyor's Salary.—At a recent meeting of the General Purposes Committee of the Manchester City Council, the town clerk read a report from the sub-audit committee, in which the question of the proposed increase of the salary of the city surveyor (Mr. Lynde) was referred to. The committee unanimously recommended that the salary of the city surveyor should be increased to 1,250*l.* per annum. The recommendation of the audit sub-committee was adopted, subject to the approval of the council.

ARCHÆOLOGY IN HEREFORD.

THE British Archæological Association are holding their Congress in the ancient city of Hereford. It was opened on Monday, under the presidency of Mr. Chandos Wren-Hoskyns, M.P. The Mayor and Corporation attended in state, and the Town Clerk having read a very complimentary address—

The Mayor of Hereford, in the name of the citizens, gave a very cordial greeting to the members of the Association.

The President then delivered his inaugural address, which was so interesting that we are led to print a considerable portion of it. After expressing a hope that every hour of their presence would be productive of gratification, as fully as it was appreciated by those honoured by it, he said that had he been led to think that in the part assigned to him there was involved any emprise beyond the homely and hearty expression of a Herefordshire welcome, nothing could have induced him to enter upon the duty of the hour. But the mission of the illustrious society, whose twenty-seventh anniversary was held there, was to teach, not to listen,—to point out to them with all the aids and advantages of widely-gathered antiquarian skill and experience the precious and too often overlooked or forgotten history of many local monuments of the past, such as their own district so richly furnished. He had, however, now to learn that true knowledge is ever gentle and forbearing,—that it knows well how to sympathise with the most imperfect efforts—nay, to condone even with ignorance itself which desires to learn. Such was the feeling under which he ventured to weave into the offering of their welcome, a few thoughts and questionings that occurred to him and to others in reference to the archæological features of the district, which formed the scene of their session of 1870. Having spoken of the term "our ancient city" as indicative rather of affection than actual chronology, he said, we are all archæologists at heart, and like to feel that we belong to the past, that our roots lie deep like those of the native oaks of our county, that there are old weather-beaten links that connect us with the almost forgotten days of an ancestral world, whose dead, but not memory, had passed away. It would seem like a waste of time were he to attempt a panegyric upon a branch of knowledge now so popular and so justly valued as that of archæology. Long before archæology had begun to be studied as a science it was the remark of one who professed himself a disciple (Sir Thomas Browne) that "Time conferreth a dignity upon the most trifling thing that resisteth his power." Such were the words of one who, in the seventeenth century, spoke only with the feelings of an antiquary. What would have been the expression of his feelings now? We had only to look at the language of every historian who had written within the last twenty years to witness the relation into which archæology had now entered as the acknowledged handmaid of history. So remarkable had been this progress, that it could hardly fail to have awakened in many minds a reflection that had taken something of the form of paradox—that the older the world grew the more it should seem to care, the more curious it became, and in truth the more it learned about its origin, ethnological, linguistic, and historical. In the ordinary course of experience, and even of thought, it might seem quite natural that a science which essentially bears reference to the past should belong to the class of subjects to which time brings diminishing interest, and should suffer from the presence of the busy world around us. So far is this from the fact, that every work that issues from the press in history, or language, or philology,—on race, on geographical discovery, and the physical history of the globe, even on general literature,—contradicts emphatically such a conclusion. It almost seems, on the contrary, as if it had been reserved for this latter age to open out a new and extended horizon, derived as from a new world of old matter. What was less than a generation ago looked upon as a topic of rare, almost eccentric curiosity to a small knot of inquirers, has, by gradual but well-marked steps, dilated into a broad front of eager and extending research, and that, too, not in one, but in many directions, the joint effect of which is in some respects to throw a fresh significance upon every branch of history, and claim for archæology a position amongst the most valued studies of the world's advanced age. Some there are, it is true, and still possibly no inconsiderable class amongst us who regard the pursuit of it as "unpractical." But he ventured to think that a little comparison would show that this was not only erroneous, but opposed to some of the best practical evidences that can possibly exist of the relative value and position of human studies. In politics, in ethics, in metaphysics, in poetry, viewed abstractedly as studies,—in painting and sculpture, in geometry, architecture, and in decorative skill, viewed as arts, the vertebral principles, so to speak, have been before the world, unaugmented by any established addition or discovery, for the last two or three thousand years. For the four first that he had mentioned, the names of Appelles, Phidias, Archimedes, and the artists of Nineveh, Thebes, Athens, and Pompeii, stand to this day unrivalled, almost unapproached. These subjects have been, in a certain sense, argued out; nothing really new (with one great exception) has been said about them for ages past, nor seems likely for ages to come. He was not aware that a single new principle of government had been evolved out of the human mind since Aristotle wrote the Politeria, or Plato his Republic, and each of the others stands in the same category. Upon these great subjects, though on many of them men remain as divided as ever into opposite views, it is not so much that we shut our eyes to new truths as that there are no new truths to tell.

Not so is it with archæology; the study which but the other day was regarded as the harmless pursuit of the curious and eccentric—gropers among the dry bones of the past,—has now awakened into such life and meaning, as to startle even the most incredulous with facts that present an organised shape no more possible to pass by or overlook than would be one of those extinct giant creatures of our globe, were it suddenly to arise before us at the recreating touch of a Cuvier or an Owen from one or two fossil bones of its stupendous form. Indeed, it is in exact analogy with such a recreative power as this that archæology develops its most useful results. It restores to the mere skeleton of history or tradition the flesh and lineaments—the very bearing and expression—which each age wore as it passed by. We see the illustrious figures of the past moving over the stage of life, as Macbeth saw in spectral procession the future of Scotland's monarchy, even down to that one who showed a double crown, by which with transcendant art our great poet brought down the story of his immortal drama to the time and into the very hearts of his audience. The history of our race, which even up to our own day was content, indeed compelled, to walk alone by the light of tradition, or of documentary evidence not always more reliable or authentic, is now comparised by an active colleague who takes nothing for granted, owes little to theory or hypothesis, but points to earthly vestiges, substantive records, visible and tangible existences, that have awakened a new century of thought, and seem to enlarge not only the scope but the very scale of our contemplation. As an illustration of his words: less than a generation back, if an antiquary had been questioned where the most ancient monuments or vestiges of our race were to be found, he would at once have pointed to Egypt or to the East. Very different would be his answer now. Without going out of Europe, without even crossing that narrow channel which so graciously divides us from its complications,—on banks, once the extended beds of familiar English rivers; beneath the soil of many a modern village,—indubitable traces are to be found of human life and habitation, reaching up to a period so remote that in comparison with those primeval denizens of our island the shepherd kings of Egypt, or the almost fabulous dynasties of India and China, would seem but men of yesterday.

> "Antiquity appears to have begun
> Long after their primeval race was run."

It might almost raise a smile to see the antiquary of the last generation paying reverence to a coin or fragment of pottery, for its extreme antiquity, reaching to some three or four thousand years, while beneath his very feet reposed the long-forgotten implements and weapons of men who saw the hippopotamus floundering and basking in the mud of the Severn or the Thames, or tracked the stately mammoth to his lair in the neighbouring Forest of Dean, or transfixed the giant reindeer, with bone-headed arrows, and scooped out its marrow with flint knives. Such

are the thoughts which unavoidably suggest themselves to the contemplation of archæology and the sciences in close alliance with it.

Proceeding in the spirit of inquiry to ask the solution of some of the difficulties the archæologist would meet with in Herefordshire, he ventured to assume the existence in other minds of a sense as enthusiastic as that which had dwelt from childhood in his own, in looking upon this county as the very heart and centre of the border land that has separated in turn some of the most varying and remarkable races by which our island has been from time to time occupied. From the earliest dawn of traditionary history, this has been the disputed territory, the battle-ground of opposing tribes and races,—may we not almost look upon it as a sort of epitome in itself of the changeful dynasties and fortunes of the whole soil of England? By the Roman and the Silurian, by the Mercian and the Briton, by the Dane, the Saxon, the early Norman settler before the Conquest, and the Welshman, our fields have been fought over acre by acre, and inch by inch. War has been here in all those forms of grandeur and of misery of which we have lately heard, and are still impressed by such painful and such solemn evidence. Century after century it has swept like an ebbing and flowing tide, backwards and forwards on the Severn on one side, to the frowning barrier of the Hatterel hills on the other, sometimes perhaps ennobled by deeds of high daring and chivalrous generosity—more often marked by the dark and fierce passions that made the very name of border warfare and the inroads of the marches a synonym and excuse for every form of rapine and cruelty; its combatants on either side realising in the worst degree the Roman general's contemptuous phrase "Cauponantes bellum non belligerantes."

Certainly the most interesting and intelligible, as well as the most early recorded of these conflicts is that long twenty years' struggle of our Silurian ancestors single-handed against the power of Imperial Rome, which found on the red plains of Herefordshire an opponent not unworthy of its arms. I need not recall to you who listen to me here that in the neighbourhood of the very spot on which we are now assembled there once existed one of the bravest and fiercest races that ever defied the practised arms of the world's conquerors. Far and near around this spot the very ground we daily tread on witnessed their dauntless and never-despairing resistance to the Roman invader. Even at this distance of eighteen centuries it is difficult to feel a glow of pride at the description given by a hostile historian of a race dwelling here whom no strength or strategy could divert from their patriotic courage, who kept the veteran troops of Rome's best legions in a state of constant vigilance and alarm, even within their entrenched camps. For such we know were throughout the Claudian war strategically arranged by Ostorius along the course of the Severn and the Avon. Yet for nine years we find this brave people under their great leader and king, Caradoc, defying the Roman arms and struggling to break through the chain of military camps established to repress them. It is doubly interesting to gather from the eloquent facts themselves that had no historian on the British side,—from the gallant and long-protracted struggle,—from the extensive operations to which the Romans were driven,—our assurance of the genius and courage of that noble British chief

> "Descended from a sceptred race,
> Who ruled Britannia's independent isle,
> Beyond all annals of recording fame."

The interest of this struggle deepens after his final defeat and capture, and the well-known scene in Rome; when we find them unsubdued by their loss, revenging themselves by bloody onslaughts upon their invaders, and Ostorius himself, in spite of his victories, dying of vexation more than fatigue; and his death followed by a defeat so ignominious that the province still threatened to be torn away from Roman power. And when was noble tribute ever from the pen of an enemy that conveyed words of Tacitus, in describing the close twenty years' warfare, where he tells Julius Frontinus had the glory of subdui powerful and warlike Silurian nation, in plishing which he had to compete wi indomitable foe, and with local strategy had equally defied the utmost efforts of predecessors.

If such was the tale as told by the pen Roman annalist, what would not the recor been if King Caradoc had but had his *vate sacro*,—if a few telegrams from our own special correspondent could but reach across the gulf of those eighteen centuries?

But let me put the question I have so often longed to ask,—for when can I better ask its solution than now—Who were the Silures? Whence came the black eyes and hair, the small heads and features, the lithe forms and swart complexions that are described as the physical characteristics of the race located in this district, apparently in such contrast with the large-limbed and fair race whom Cæsar found on his first landing in Eastern Britain, and which have been accepted as the ordinary British type? Were they a Keltic race? and, if so, to which of the Keltic migrations did they belong? or is that theory true which assigns them (with Tacitus) to the Iberian rather than the Keltic stock, and connects them with the population of the Basque provinces of the Pyrenean districts, whom they so much resembled. Or are both these theories consistent with each other, and did the Silures form part of that third Keltic migration that came from the south by sea, and has been called from the country where the migrants longest remained and exercised most influence, the Hispano-Gaelic migration? We are told that there is heard to this day in a few hamlets on the Pyrenees a tongue entirely dissimilar from any that falls on European ears—an isolated surviving vestige of some ancient tribe whose history and migration have been long buried in the mystery of Time: yet these few traditionary sounds are of deep interest to the student of those early migrations through which the west of Europe was peopled by intrusive races who first conwas peopled by intrusive races who first conquered and then united with the native populations. May we venture to suppose that it was from that migration, bringing with it so much that we associate with the Iberian or Spanish stock that the Silurian type was derived?

And if this supposition be admissible, may it be to an old student of agriculture allowable to connect with it collaterally a peculiarity found in this county in the existence of a certain ancient four-footed race bearing striking points of resemblance with the sheep of Spain,—the Spanish merinos? I allude to the little Ryland sheep, whose silken fleeces once formed the unrivalled staple of the commerce of Leominster, when that town was one of the principal markets, indeed the chief emporium of this part of the kingdom.

In concluding an exceedingly interesting and very eloquent address, Mr. Wren-Hoskyns said: The truth is, we are so full of written histories that we are apt to forget what Mr. Newton, our Herefordshire Layard, so eloquently says,—"The record of the human past is not all contained in printed books." Man's history is graven on the rocks of Egypt, stamped on the bricks of Assyria, enshrined in the marble of the Panthenon. It rises before us in the piled-up arches of the Coliseum; it lurks in unsuspected treasure amid the oblivious dust of archives and monasteries; it is embodied in the heir-looms of familiar races, in the relics which affection and gratitude, pride of country or lineage, have preserved; it lingers like an echo on the lips of the peasantry, surviving in their songs and traditions, renewed in their customs with the renewal of nature's seasons. We trace it in the speech, the manners of nations; we dig it out from the barrows and the necropolis; and out of the fragments thus found we reconstruct in museums of antiquities something like an image of the past.

The footprints of those who have gone before us are not the mere subject of literary interest or curious inquiry; they find an instructive response in our hearts which rejects the mere parrot-tale of the showman or cicerone. We are sensible of an occult relation sacred to each individually with all that has gone before us,—with all that will come after: we stand upon a mere point of Time, with an Eternity on either side. It is our special privilege alone of all created things,—often our penalty,—to look be-fore—to remember, and to hope. have been left to us from the that tie each generation with behind it. Spanning the monumental records, often as smitted as the footprints of that pressed lightly upon the pear to our eyes through the fossil shapes of almost im-y,—apt emblem of our own s, yet far-reaching thought

On the motion of the mayor, thanks were voted to Mr. Hoskyns by acclamation, and after a brief address by Mr. Godwin, warm thanks were also given to the corporation. At the dinner in the evening, the president was in the chair, and several interesting speeches were made.

On Tuesday morning, after service, Mr. Gordon Hills conducted a large party round the cathedral, and delivered a discourse on its history, in which light was thrown on several disputed points: afterwards, the Rev. C. Boutell ably described the monuments. To both these addresses we shall return. In addition to the gentlemen already named, the Rev. Dr. Jebb, Prebendary Scarth, Mr. Thomas Wright, M.A.; Mr. Edward Roberts, F.S.A.; Mr. Blashill, Mr. W. P. King, Mr. J. F. Symonds, Mr. Henry Godwin, F.S.A. (of Newbury); Mr. W. H. Black, F.S.A.; Mr. Holt, F.S.A.; Mr. T. Curley, C.E.; The Rev. F. T. Havergal, Mr. J. Severn Walker, Mr. G. C. Haddon, Mr. Dillon Croker, the Bishop, and others, are taking active part in the proceedings.

COLOURS AND DYES IN EARLY TIMES.

THE subject of colour, now so much discussed in connexion with architecture and sculpture, is interesting in more respects than one. Colour has also a sanitary aspect. The houses we live in, the food we eat, the fluids we drink, and the clothing we wear, display it. Our very tastes, bodily and mentally, are influenced by colour. To its influence and production, in a domestic and sanitary point of view, we will first look. There is hardly anything in nature or art colourless, and a certain colour, to certain minds, produces a feeling of pleasure and comfort, or otherwise. Independently of the fine arts, and of Nature's landscape, we are governed by colour. The female dress or head-gear, or the man's coat or vest, is as often chosen for its dye as for its texture; but not one out of the ten thousand who are more or less influenced, or who even talk glibly about colour, gives one moment's thought to how these beautiful dyes in articles of their daily clothing are produced. The history of the art, in its relation to civilisation and sanitary progress, possesses much interest and deserves attention.

The early inhabitants of the British Islands understood, not only the art of making several kinds of linen and woollen cloth, but were acquainted with native modes of dyeing them. We are told by Strabo and Dion of the principal colours worn by the ancient Britons, which appear to have been yellow, red, and black; and Giraldus Cambrensis, writing in the twelfth century, tells us that the Irish wore frequently black, which he avers was principally made from the wool of their black sheep. The history, romances, and poetry of the Kelts furnish us with abundant proofs that it was saffron or yellow colour that predominated, and for which the greatest fondness was shown. Of the other colours, red and crimson are often mentioned. Robes of these colours have been often worn. Several Irish statutes, however, bear testimony of the propensity of the Kelts for yellow. Among the Gauls and ancient Britons the principal colours were black, crimson, purple, and yellow, and there were also several among the Kelts. While we learn a good deal from history about colour, the majority of our historians are altogether silent about its production, or of the materials used in its composition. In considerable travel through the British Isles, extending over many years, we have picked up from usages, recollection, and mouths of the people themselves, in distant localities, the information we have been unable to obtain elsewhere. Some years ago, on the coast of Wales, and on the south-west coast of Ireland, we found traces of the primitive modes of dyeing, and the methods used for producing the materials employed in the production of some very beautiful dyes and colours. Yellow was, in former times, and recently, a favourite colour with both sexes, but principally with the fair sex. In England, Ireland, and Wales, women dyed their chemises, veils, petticoats, and bodices, and the men their shirts, vest, and trousers. In Ireland, after the invasion of Henry II., Acts of Parliament were passed to prevent the English settlers from following the Irish custom of dyeing their garments yellow. The English statutes assert that the colour was saffron. We wonder if, by saffron, was meant the crocus, as we cannot find any evidence that the early Irish ever cultivated the crocus. Its introduction into gardens in that

country is of a recent date. It was hardly imported from abroad by the common folk, or even others, as its expense would preclude it from being commonly used. Saffron probably meant any yellow colour. The wold or weld, *Reseda luteola*, sometimes called dyer's weed, used so extensively in this country, was also used among the Irish, and was known to them by the name of *buidhmor*, or great yellow. We are aware that the Irish used the plant to dye their woollen and linen stuffs with different degrees of colour, and fixed it with urine. The colour thus obtained was not given to fade; it resisted damp or wet for a considerable period, and possessed another property, thought to be of advantage to the poorer classes—it required little or no washing.

If we are to credit Morysson, the Irish of the period he alludes to, were very sparing of their clothes, and were not addicted to wearing them out by washing, frequently not taking their shirts or chemises off until worn out. The truth of this must be qualified by suggesting that it must be the very lower orders who would thus wear out their under-clothing without cleansing. It is asserted that washing was not necessary in some instances, as these linen garments became so thick and close by the colour and fixing employed as to become nearly impervious to dirt or wet. This assertion must also be received with considerable allowances. The black colour which Cambrensis speaks of as being general, from the fact of the existence of black sheep being in the country, is not borne out on examination. All the sheep were not black, and we find that the black colours were of a deeper hue; and consequently, if black wool was even generally used, a deeper tint was employed. We find that such was the case. The lower orders, down to a few years ago, in remote districts, had their mantles, trousers, and cloaks of this colour; and the following was the method employed for producing the colour or dyes:—A bog-mire was procured; and this consisted, as all are aware, of decayed vegetable matter of an astringent quality. The colour was fixed by the same means as we have before mentioned, a means still used, more or less, throughout the three kingdoms. The colour produced by the bog-mire was of a jet or deep black. This was a most lasting colour when once properly fixed; the weather could not affect it, and it retained its brilliancy while a portion of the cloth remained. If coarse woollen cloths could be thus dyed by the humble and unlettered of such inefaceable hue, it occurs to us that clothiers would be successful with fine linen stuffs also. Persons of rank in England formerly, and very generally in Ireland, had their garments, which were made of fine stuffs, dyed purple and crimson colour.

We find, in some of the ancient Ossianic and Keltic poems and romances, frequent mention of purple (red and blue) garments. Many of the Irish and Welsh peasantry by the seashore, in the last century, and early in the present, were engaged in collecting the mosses that grew upon the rocks and stone, for the making of purple dye. The Irish called it *corcair* and *arcell*, and by the Erse it was known as *corkir*. The fine bright crimson colour was obtained from the finer kind of *corcair* scraped from the rocks, which was afterwards dried in the sun, and reduced to powder; then infused in urine for nearly the period of a month. The *arcell*, or coarse kind of moss, produced the purple colour; it was also similarly treated, and made up into balls with lime. It produced a beautiful purple colour. Early in the present century large quantities of colours and dyes thus made were sold in the public market-place in Dingle. The very same description of moss in nature and property was largely imported to London from the Canaries and the Azores, under the name of Orchil. At the date we are speaking of, 10,000*l.* to 12,000*l.* annually were paid away for foreign moss, and this same *archil* or *arcell* could be procured in any quantities on the south-west coast of Ireland, and on other sea-beaches in Great Britain. The Irish produced also from this moss, orange and bright scarlet colour. This they accomplished by dyeing the stuff first yellow and afterwards crimson.

Dr. Nicholson, the antiquary, when Bishop of Derry, in 1725, intending to prepare a natural history of his diocese, wrote to his several clergy to make collections in their several parishes. A Rev. Robert Innes, rector of Magilligan, in the county of Derry, responded, and in 1732 the rector published in London seven letters, addressed to his lordship, of a very interesting kind. From one of these letters we glean a few more facts in corroboration of our own researches and experience. One extract will be interesting:—"The Irish have herbs for diet for physic, and almost all uses. They use a *pentaphyllum rubrum*, — in the Irish language, *crowlean*,—to thicken their milk suddenly, by rubbing their vessels with it; and, by the way, I cannot think it the same with Parkinson's or Ray's, for this carries no red flower, nor any flower but purple hairs, on a strawberry-like button, but whether I mistake them, my lord, I will not be particular. The tops of the yellow ladies' bedstraw they use for dyeing yellow, and the roots for a madder red. Crother, a sort of moss on stones, dyes a good gold colour. Corkry, another scurf on stone, dyes a peach colour; the roots of the white water-lily, a black. In a word, we can dye most colours with our native growth, but blue, or what depends upon it. The roots of tormentel (in Irish, *namnat*) hath been used by the Irish to tan leather."

It would appear from the above interesting record that the Irish in Dr. Nicholson's day,—or say, a century and a half ago,—had no native method, no plant indigenous to the soil, for producing blue. It might be true as far as Derry was in question, but it is not true of the whole country.

The plant well known in this country as woad was extensively grown in England for many years—it produced a permanent blue dye. This plant must have been known in the sister kingdom also, though not so soon. We cannot say we met with it much in its wild state anywhere except in the immediate districts where it was extensively cultivated, and in places where the seed was likely to be drifted by the wind. Blue, as a general colour, does not appear to be in much repute among the early inhabitants of the British Isles, although we read of the ancient Britons dyeing their bodies with a blue colour. In the present century in the three kingdoms, blue colour in articles of wearing apparel appears to be more sought after than formerly. Blue, for many things, is a more lasting colour than black; while lime and mortar will affect black cloth, and turn it yellowish, blue will resist its effect.* Indigo now is gradually superseding the use of woad. The latter we have known to be greatly adulterated, and which, though sold as woad, fully two-thirds of it was composed of a variety of wild and cultivated plants ground up altogether, dried and rolled up into balls for use. The public have been thus cheated out of their proper colour and dye, cheated in articles of clothing as well as eating and drinking, through believing they were purchasing stuff that would wash and hold their colours fast. A dress, of course, that does not hold its colour, though warranted by the seller to do so, is simply a robbery. The seller knows pretty well, from the price which he pays the manufacturer, whether the article is a fast colour or not, and if he sells it as a fast colour to the struggling tradesman or tradesman's wife as a fast colour when it is the reverse, he is obtaining money under false pretences, and he should, without any ceremony, be at once indicted. This is the sanitary aspect of the case, in the interest of the health and living of the poor.

We will adduce a few more particulars concerning the dyes and colours in use by the ancient British and Irish ladies. Dion and the venerable Bede inform us that they dyed their linen a beautiful crimson colour, which neither the heat of the sun nor the continuance of the rain could injure. The colour was produced from a small shellfish called *cochleæ*, and was named accordingly *coccine*. We are not told by any of our ancient writers the species of shellfish. We have sufficient knowledge to be certain that it included the periwinkle and a limpet of black, red, white, brown, yellow, and sand colours. The method of obtaining the colour or dye was pretty extensively practised at one time on the western coast of Wales, and on the eastern coasts of Ireland, principally Wexford and Wicklow. The fish was turned upon a stone or some other solid body, with the under-neath, and without injuring [illegible] was carefully broken. The shell being picked off, a white vein presented itself, extending transversely in a hollow or furrow near the head. This might be lifted out by a pointed instrument. When the periwinkle was used the shell was not injured. In this instance the vein was seen lying on the head. This, being pricked with a needle, emitted a few drops of a milky white liquid. The process might be repeated for four or five days without injuring the fish. If letters or figures were drawn with the liquid obtained from either fish on linen, the characters first assumed a light green, then a deep green, next a full sea-green, afterwards blue, again a deep purple, red, a perfect set of chamelion-like variation, all in a few hours, while exposed to the sun. When the sun has done all it can do, domestic art steps in. By washing it in hot water and soap, the purple colour then becomes a beautiful crimson, which none other of the elements can change,—sun, rain, nor washing. The early Britons are said to have dyed much with this colour, but we doubt it. To dye thus on a large scale, would lead to the destruction of immense quantities of fish. With only six or seven drops to be obtained from each fish, the sacrifice of the little marine mollusca would be something awful to contemplate,—sufficient, we opine, to start into existence a new Society for the Prevention of Cruelty to—Univalves. Some hint that the celebrated Tyrian dye of the ancients was produced from these shell-fish; but it is more likely that the famous Tyrian purple dye was obtained from orchil or corcair, so plentiful on their rocks.

If *cochleæ* could be procured in sufficient quantities to dye large pieces of linen, the beauty of the fabric could be enhanced, and also the price, the colour thus obtained being so beautiful, exceeding that of corcair.

Foreign importation, mechanical appliances, and chemistry have of late years been fastly superseding old native ways and means. Yet it is hardly to be doubted that, in the bustle and din of now-a-days, much that is valuable is lost sight of, because it has dropped out of use, at a time when there was no method employed or properly known for utilising it. We have under our very feet material for many things quite equal to what we often send several thousands of miles to procure. Our mountains, bogs, and sea-beaches are mighty and gigantic undeveloped resources of fuel, building materials, food, and minerals. By the talismanic touch of industry and energetic labour, they may be made to yield animal sustenance for our bodily wants and materials for our domestic uses.

Of colour in the concrete and in the abstract much might be usefully written, as also of the manufacture and manipulation of colours for fine art and domestic purposes; but these latter branches of the subject would lead us into extensive technical fields, foreign to the immediate topic.

* We have seen young walnuts [illegible] purposes, and we have known them [illegible] parts of Great Britain and Ireland, [illegible] yellowish brown colour. We believe [illegible] ful dye, and when fixed with a pur[illegible] would be everlasting. Lighter or [illegible] managed by the treatment given. [illegible] beautiful dyes or colours the earl[illegible] countries produced, destitute of [illegible] mistry, and of the ingenious met[illegible] fixing the colours produced.

ARCHITECTURE FOR INDIA.

We quote an additional portion of Lord Napier's Lecture on Architecture already referred to:—*

The march of Mussulman conquest is generally associated with images of desolation, and no doubt in some respects with justice. The disturbance of existing laws and a violent change in the depositories of power must, under all circumstances, be associated with some oppression of productive industry, of arts and of letters, and there was much in the principles of the Mahomedan religion and the practice of its early sectaries to aggravate those inevitable evils. The Mussulman invaders rarely fostered or practised agricultural labour, they rather lived wastefully on the labour of others. They had little respect for the poetry, the philosophy, or the history of the subjected races, the science which they adopted from the conquered they did not much improve, while the maxims of their faith, impatiently confounding worship with representation, prohibited the imitation of the human figure in painting and [illegible]e. The progress of Mahomedanism was never, entirely destructive. Excluded from [illegible] dominion of the Fine Arts, the ardent and [illegible]ined genius of the Arabs fired by an [illegible]astic belief in the sublime dogmas of the [illegible]ality and unity of God, expended itself in [illegible]ation of an order of religious architecture [illegible]has never been surpassed in the history [illegible] world. Nor was the secular branch

* See p. 680, *ante*.

behind the sacred. Bred in the invigorating atmosphere of revolutions and conflicts, many of the Mussulman rulers discovered generous abilities and tastes. The fine arts, in a limited sphere, were the indispensable attendants on the pleasures of their courts, and there are proofs in the memoirs of some that they took a personal dislike in the patronage and practice of poetry, music, gardening, and design. From Granada to Constantinople, from Constantinople to Samarcand, and from Samarcand to Bejapore, the earth is adorned with the masterpieces of Muesulman piety and taste, and too often strewed with their remains. In contemplating this admirable development of art, it is but just to observe that it started from an advantageous basis. The Mussulmans found in Syria, Egypt, Northern Africa, Spain, Asia Minor, and Byzantium, the monuments of ancient Roman architecture, at least in partial preservation, and a new style growing up under the influence of Christianity, which, if in some respects barbarised, was still, as experience proved, possessed of a fruitful vitality, and pregnant with the most beautiful developments. The capital features of the style, whether pure in the Pagan forms or in process of Christian transformation, were the arch and dome. These the Mussulmans adopted and diversified, and having added the minaret, they thus composed a group of architectural forms, in which dignity, elegance, and the picturesque are united with perfect constructive science. The Mussulman forms are, however, not only beautiful and scientific, they are in the highest degree flexible and useful, they unite cheapness with adaptability.

Mussulman architecture requires the least amount of ornament conceivable, though it is capable of receiving a great amount of ornament. As the lines are harmonious and aspiring, the lines alone please the eye. While the Hindu and the Greek require to be loaded with sculptural decorations, without which they would appear poor and bare, the forms and combinations of the Saracenic possess an independent and satisfying grace. But there is not only an economy of ornament, there is an economy of material. The horizontal styles, those which are represented by the pillar and the beam, demand when the spaces to be covered are considerable, and the supports are distant from each other, a vast application of material in its most weighty and expensive form. But the arch and the dome offer, as I have said before, a combination of parts, each small and cheap in itself, but capable together of spanning the largest areas at the smallest cost. The Saracenic forms can also readily be adjusted to any destination. Most excellent in the sphere of their primitive application for divine and solemn purposes, for the mosque, the cloister, and the tomb, they are equally available for habitations of great and small dimensions, for halls of public assembly, for galleries and exhibitions, for railway stations, for repositories of goods, for theatres, conservatories, and lecture-rooms—in fact, for all the diversified requirements of modern social life. I do not know whether it has been suggested that the Saracenic style appears also to be best adapted for iron constructions, and especially in this country. It is true that the dome and the arch, so congenial to iron building, belong to other styles as well as to the Saracenic, for instance, to the Roman; but the proportions belonging to the Roman style are more massive than would be suitable in iron, nor does the Roman offer as a great variety of designs as the Saracenic for screens, railings, perforated surfaces, and other subordinate decorative objects.

I hope I shall not be considered fantastic in remarking, that a feature in the Saracenic architecture peculiarly attractive is the sympathetic manner in which it associates itself with gardens and trees, and with all the forms of natural scenery. For parterres of the regular kind, the geometrical patterns peculiar to the style supply an exquisite frame-work; while the cypress and the plane, the types of aspiring and spreading vegetation, appear to be repeated with a sort of rythmical concord in the minaret and cupola. It is not in the power of all to admire these harmonies beside the rushing current of the Bosphorus, or on the slopes of the Bythinian Olympus, or at Cairo, where the Caliphs sleep between the city and the desert, or where the dust of Shah Jehan and Moumtaza Mahal rests under an incomparable canopy, near the waters of the Jumna; but go to the quiet garden at Seringapatam, go to the grove of tamarinds and palms beneath the rocks of Vellore, where the funereal repose is accompanied by the muttered Koran and the murmur of waters from the well; there you will still feel how the voices of nature and art, of beauty, divinity, and death are blended by the Mussulman builders.

It has been remarked by Mr. Fergusson, in a recent lecture, that the forms of Hindu and Mussulman art have been happily associated in secular buildings. This union has taken place sometimes through the adoption of Mahomedan forms by Hindu architects, sometimes through the employment of Hindu artists by Mussulman princes. Fine examples of the former method are to be seen at Bejeanugger, and also at Madura, to which the Naick chiefs transplanted the arts of the Telugu capital on the Toombuddra. Examples of the latter abound among the later works of the emperors of Baber's line. Under Akbar and Shah Jehan it almost seemed as if an attempt had been made to effect a reconciliation between the arts of the Hindus and Mussulmans, corresponding to that which was so happily established for a time in their political and social relations. It must be allowed that the architectural combination is often effective and picturesque, yet I think that the mixture is to be deprecated. The Hindu and Mussulman may borrow from one another with less disadvantage than from the European, and I would even allow that the first may occasionally employ the Saracenic arch combined with their own decorative details; but the Mussulmans should never adopt anything from any foreign source whatever. They possess a perfect style, which can only be debased by alliance. The corruption of the Saracenic is very remarkable in Mysore and the Carnatic. At Seringapatam you may see the Mussulman cupola surmounting a Hindu colonnade. At Wallajahpet, in a mosque of recent construction, the façade is composed of a classical portico with Saracenic pinnacles, while the surrounding cloister is Hindu. Similar degradations may be observed at Madras. There is a handsome tomb, erected in Triplicane about the beginning of the present century, where Roman pilasters and vases, with Hindu details, are all incorporated with a Saracenic outline. The great mosque of Triplicane, constructed in part of noble materials, and in a style of severe simplicity, seems to stand forth as the last protest of a dying art, and to rebuke the degeneracy of the present age. To the Mussulman youth who aspires to taste and knowledge, I would say, as I have said to the Hindus,—respect, preserve, study, and imitate the works of your ancestors, using their examples not slavishly, but with intelligence, modifying them, in their native spirit, to the requirements of the time.

The Governments of India might, in my humble judgment, do well to consider whether the Mussulman forms might not be adopted generally as the official style of architecture. Very little study would render them familiar to the English and native builders. They would be found, after a short experience, to be cheaper than the present forms, and far superior, with reference to shade, coolness, ventilation, convenience, and beauty to all that we see around us. This Government has endeavoured, with the advice of an accomplished architect, to exhibit in the improvements at the Revenue Board an example of the adoption of the Mussulman style to contemporaneous use. Mr. Chisholm would be the first to disclaim and condemn the material, which has been forced upon him by necessities to which we are still subjected; but his design will be a practical demonstration of the views which I have here advocated. He has paid the first tribute to the genius of the past; he has set the first example of a revival in native art, which, I hope, will not remain unappreciated and unfruitful.

SHEFFIELD.

New Music Hall.—The chief stone of a new concert-hall, in course of erection in Barker-pool, has been laid by the Duke of Norfolk, in the presence of a numerous assemblage of people. The edifice will be in the Italian style of architecture, though it will not be very elaborate in its decorations. The principal entrance will be in Barker-pool; and it is intended that the pavement along the whole front shall be covered in, so that no inconvenience may be experienced in wet weather by persons leaving or going to their carriages. The entrance opens into a hall 26 ft. square, on each side of which are waiting-rooms, and two wide staircases, one leading to the floor of what will be called the "great" hall as distinguished from one of less proportions, and the other also leading to that floor, and affording an entrance to the balcony and to the first gallery. In addition to the waiting-rooms in the entrance-hall, there will be two refreshment saloons. Another entrance to the building will be in Burgess-street, and a third entrance at the end of the hall farthest from Barker-pool. Two distinct staircases lead to the principal gallery, and there are other staircases for the use of the orchestra, performers, and others. Adjoining the Burgess-street entrance there will be the "little" hall; not very little, however, for its dimensions are 60 ft. by 30 ft.; and leading from it there will be several waiting and retiring rooms for musicians, performers, and so on. This hall will be used for rehearsals and for small concerts. At the top of the staircase in the main entrance there are two spacious corridors, one extending along the whole front of the building, and the other running down the western side. By means of these, and by four doors in the various parts of the room, entrance is obtained to the floor of the large hall, the dimensions of which are 120 ft. by 60 ft. In the interior the sides will be broken up by pilasters, and the ceiling will be of wood coved, and decorated with perforated panelling, which will be used for the purpose of ventilation. The height of the hall is 50 ft. in the centre and 43 ft. at the sides. The balcony, which is approached by its own staircase, will be two seats only in depth, with a passage at the rear. Behind that at the Barker-pool end there will be a small gallery, and above it the principal gallery, which will extend the whole width of the end of the building. Near to the orchestra there will be a couple of private boxes. The hall will be capable of accommodating 2,500 persons comfortably, but by removing the seats from the floor upwards of 500 more could gain admittance. The town has long wanted such a building. Messrs. Flockton & Abbott are the architects.

Proposed Art and Industrial Museum.—On September 1st, at the Cutlers' Feast, Mr. W. Bragge, the new master cutler, declared his intention of making it his business, during his year in office, to establish in Sheffield a museum useful to the art industry of the town. On the following day a meeting was held, at which a committee was appointed for the promotion of the work; and Mr. Cole, on behalf of the Science and Art Department, stated what assistance could be demanded from the Government.

The Norfolk-street Improvement.—The Under-Sheriff of Yorkshire, Mr. W. Gray, and a special jury, have been occupied at the Town-hall, in assessing the value of certain property required by the Corporation. The claimants were Miss Elizabeth and Miss Helen Shearwood, of Sharrow, who are interested in some property in Market-street, Commercial-street, and Market-place, which is required by the Corporation for the improvement authorised by the Local Government Supplemental Act of 1858, and which is known as the Norfolk-street improvement. The Corporation were unable to come to terms with the Misses Shearwood as to the value of the property, and consequently a special jury was summoned to assess the value. The property is divided into three parts. Of the first portion the claimants own two-thirds; in the second they have a similar interest, subject to a lease of which nearly twenty years remain unexpired; and in the third they own the two-thirds of an individual moiety or half part, the former owners of the other moiety being the Trustwell Brewery Company, who have sold their interest to the Corporation. The claimants assessed the value of their interest at 5,000*l.* each—in all, 10,000*l.* The amount which the Corporation offered for their joint interest did not reach half that sum. The jury having paid a visit to the property, Mr. Digby Seymour, in opening the case, contended that the sum which the claimants had asked was not extravagant, and in support of this he proceeded to call witnesses. Mr. W. Blackmoor, architect and surveyor, Rotherham, stated that he had made a valuation of the property, and his estimate was 12,693*l.* 6s. 6d.; adding 20 per cent. for compulsory sale, his estimate would be 15,230*l.* 18s. In cross-examination by Mr. Lloyd, Mr. Blackmoor stated that his calculation was based upon the prices which property had recently fetched at auction sales in Sheffield. Mr. William Henry Eadon, of the firm of W. H. & J. A. Eadon, auctioneers and valuers, Sheffield, had valued the property at 12,208*l.*, exclusive of 20 per cent. for compulsory sale. Witness asserted that it would have fetched that sum had it been offered by auction. Mr. Thomas Henry Jenkinson, architect and

surveyor, Sheffield, said his estimate was 12,251*l.*, with 20 per cent. to be added to that amount for the compulsory sale. Mr. Thomas Fenwick, of the firm of Messrs. Martin & Fenwick, civil engineers and surveyors, Leeds, also gave evidence in support of the case of the claimants. Mr. Lloyd then addressed the jury for the Corporation. He said that his clients had made an offer of 2,130*l.* to each of the claimants for the sake of peace, and in consideration of the costs that would be incurred by litigation. Mr. S. F. Holmes, borough surveyor, was then examined. He said he had been connected with Sheffield public works for twenty-two years. He purchased for 400,000*l.* the property of the Midland Railway Company which passed through the full length of the town. He had examined and valued the property for which the present claims were made. His estimate was 3,517*l.* 16*s.* 8*d.* for the whole of the property. As to compulsory sale he first of all added to his valuation ten per cent., but as he should have had to deduct ten per cent. in consequence of the property being in moieties, he had put one against the other. Mr. Thomas James Flockton, of the firm of Abbott & Flockton, architects and surveyors, Sheffield, agreed with Mr. Holmes on all the questions of valuation. He only differed in the discount to be allowed for reversion, which would make an additional sum of 114*l.* Mr. Joseph Nicholson, auctioneer and estate agent, Sheffield, thought Mr. Holmes's valuation was a very liberal one. Mr. D. Seymour having briefly replied on the part of the claimants, the Under-Sheriff summed up. After an absence of about an hour, the jury awarded 1,880*l.* 2*s.* 8*d.* to each of the claimants.

SCIENCE AND ART DEPARTMENT.

THE results of the late examinations in drawing held by the Science and Art Department are as follow:—As respects schools for the children of the labouring poor—in 1,376 examined, 98 544 children and pupil teachers worked 114,964 exercises, being an increase on the numbers examined in 1869 of 282 schools, 16,093 children and pupil teachers, and 19,750 exercises. As respects schools of art and art night classes,—in 394 schools examined, 16,361 students worked 24,370 second grade exercises; an increase of 91 schools, 3,587 students, and 4,330 papers. From 347 schools of art, night classes, and science classes, 13,660 students submitted to the Department for examination 90,889 drawings executed in the ordinary course of the year's study, being an increase of 126 schools and classes, 3,735 students, and 25,440 drawings. In 1869, 75 candidates were examined for the third grade, or art master's certificate. These worked 302 exercises, and 25 candidates were successful. In February last 78 candidates, who worked 316 exercises, were examined, and 27 succeeded in obtaining the certificate. Finally, the total number of schools examined in drawing this year is 1,824, and of candidates 128,634, by whom 230,269 works and exercises were executed, showing a total increase in twelve months of 404 schools examined, 23,418 candidates, and 49,534 works and exercises. In the last three years there has been a total increase of 1,146 schools, 76,412 candidates examined, and 160,867 worked exercises.

THE DRINKING FOUNTAIN MOVEMENT.

A GRANITE drinking-fountain, which has been erected under the auspices of the Metropolitan Drinking Fountain and Cattle Trough Association at the railings of St. Botolph's Church, Aldersgate-street, has been opened for use. The cost of the fountain has been defrayed by the daughters of the late Mr. Ward, in memory of their father, who was formerly one of the churchwardens of St. Botolph.

A drinking-fountain has been presented to the inhabitants of Loughborough by the Venerable Archdeacon Fearon, at the cost of, we believe, about 150*l.* It has been erected in the Market-place by Mr. Forsyth, of London. A public presentation by the archdeacon has taken place in the presence of a large crowd of spectators. The fountain is of Portland stone. The central portion, square on plan, is 10 ft. high. The lower portion to the level of the marble drinking-basins is of vermiculated rustic work. From this portion spring four Cornish granite columns, having carved capitals, carrying a groined canopy, enriched with a carved cornice, and terminating in a double-light globe lantern. Within the space inclosed by the columns is a small fountain with convolvulus jet, the water from which falls into a basin below. Jets of water also spring from conventional lions' heads on opposite sides, and serve to supply troughs intended for the use of cattle. The drinking-basins, which are of veined marble, are approached by two steps on each side, and the surplus water from them is conveyed into a small dog-trough.

THE SANITARY CONDITION OF TAUNTON.

WE have lately visited this town, and while we were pleased to see the streets well cleansed and watered, we regretted to find a defective system of sewerage and drainage. The sewage of the town empties itself, or is supposed to empty itself, into the Tone; but the water of the river is on a level with a greater portion of the town. There is, in consequence, for over a mile of its length, little short of a stretched out cesspool. Plans have been often suggested for getting rid of the sewage; but as none of these have been adopted, danger might have been foretold. Capt. Beadon, who owns a fishery on the Tone, has, by his action, opened the eyes of the local functionaries. A few days since he served the Local Board of *Health* with a notice that unless they abate the nuisance in the river, he will, by an application to the Court of Chancery, obtain an injunction for preventing their sending any more sewage into the river. The Captain has gone so far as to place the necessary papers in the hands of counsel. It remains to be seen now how the local authorities will act. When the health of the inhabitants of a town becomes a primary consideration instead of a secondary one, the right men will be found to be in the right place, but not till then.

RAILWAY MATTERS.

New Metropolitan Railway Route.—A new railway route, by which the stations on the North London Railway will be brought into direct communication with Blackwall, and collaterally with Greenwich and Woolwich, has been opened. This has been effected by the completion of the connecting line between the North London and Blackwall Railways; and the advantage arising from it to the public travelling over the North London system will be, that while the train service has hitherto worked only as far as Poplar, it will now be extended to Brunswick-pier Station, Blackwall, and so form a connexion by steamboat with Greenwich and Woolwich. The trains to and from Blackwall will run every quarter of an hour, and the boats to and from Greenwich and Woolwich every half-hour.

Cheap Railway Fares.—The directors of the Great Eastern Railway have determined to abolish express fares, and have placed all the trains on the ordinary fare rate.

Destruction of a Railway Bridge by Fire.—A bridge, to a large extent composed of wood, which crossed the Esk near Dalkeith, on the Waverley route of the North British system, has been destroyed by fire. The origin of the fire is attributed to some red-hot ashes falling from the engine of a goods train. The traffic is considerably impeded. It is carried on by means of a loop-line, which joins the Waverley route south of Dalkeith, and the Berwick line of the North British east of Inveresk.

Railway Traffic Returns.—According to the *Railway News*, the traffic receipts of the railways in the United Kingdom for the week ending September 2, 1870, upon a mileage of 13,767, amounted to 899,769*l.*, being equal to 65*l.* 7*s.* per mile. For the corresponding week of last year, the receipts were 872,548*l.*, the number of miles open 13,335, or 66*l.* 8*s.* per mile. A comparison of the two weeks shows an increase in the aggregate receipts of 27,221*l.*, and in the number of miles open of 432.

A Tall Chimney at Bagillt, in Wales.—The new chimney which has been erected by Messrs. Walker, Parker, & Co., Dee Bank Lead Works, is now being completed. It is 91 yards in height; and being built upon a hill, it can be seen for many miles around. A "Steeple Jack" was recently to ascend from the outside to fix the lightning conductor. One of the workmen has been walking, in fool-hardy bravado, round and round the top of the chimney.

ARCHÆOLOGICAL MEETINGS.

SOMERSETSHIRE.

THE twenty-second annual meeting of the Somerset Archæological Society commenced at Wincanton, under the presidency of Sir W. C. Medlycott, bart., of Venn, Milborne Port. The members and friends assembled in the Town-hall for the transaction of the annual business. The attendance included a number of ladies.

After the formal business of the meeting had been gone through, the first paper which was proposed to be read was by the Rev. H. D. Wickham—"Civil Historical Notices of Wincanton and its Neighbourhood." The president, having first read a short statement, extracted by himself from Macaulay, of the battle which took place near Wincanton between William of Orange and James II., remarked that there was a much more detailed account in an old pamphlet, which might be interesting to the society at its meeting in this locality. The president then called the attention of the assembly to the printed programme of proceedings.

Rev. H. D. Wickham said, since that paper was drawn out, a very interesting discovery had come to their notice, which would render it desirable to deviate a little from the form of to-morrow's examination. The deviation would not be much, for it was only about a mile from Wincanton, on property belonging to Mr. Dendy, that a tesselated pavement had been recently discovered, and some other remains, which he thought would be interesting to the society to visit. It would be only to turn out of the way a quarter of a mile, and then rejoin the road, and go on to Cadbury. The discovery alluded to appeared to be the remains of a Roman villa.

Mr. Wickham then read his paper, as announced by the president.

The Rev. Canon Meade read a paper on the history of Castle Carey Church, as gleaned from diocesan and parish registers and churchwardens' accounts. The Rev. Canon, in the course of his paper, said he wished to relieve the parish from a stigma which had been cast upon it. The late Mr. Russ was told by a traveller in Southampton that Castle Cary was a most barbarous place, "because it was the only place where cockfighting was thought to be a practice fitting to be recorded on a tombstone in the churchyard!" On his return Mr. Russ went straightway to the churchyard, and after considerable search found a tombstone on which were sculptured two birds, standing opposite, and apparently ready to peck at each other. However, by dint of careful examination it was found that the old stone was in memory of a respectable family named Swallow. The birds, therefore, that were mistaken for cocks were intended for swallows, and instead of fighting, were meant to be billing; and they evidently formed a rebus upon the family name!

Mr. W. A. Jones, M.A., F.G.S., read a paper on Lord Chief Justice Dyer; the Rev. J. Heale gave an account of Poyntington Church; the Rev. W. Barnes, the "Dorset Poet," discoursed on "Somerset and its Language," on each of which a discussion took place.

A visit was then made to the church, which contains a few points of archæological interest, and afterwards the members partook of *déjeûner* at the Greyhound Hotel, at which Sir W. C. Medlycott presided.

A temporary museum was arranged in the National School-room, and was inspected with much interest by the visitors.

An evening meeting for the reception of papers was held, when the following was the programme:—The president, on the civil war in Somerset, as detailed in an ancient and rare pamphlet; Mr. Emmanuel Green, on the battle at Langport; Mr. John Batten, on the sequestrations in the manor of Catsash; and Mr. Edward T. Stevens, of the Blackmore Museum, Salisbury, on "Flint and Stone Implements."

The programme for next day included an excursion from Wincanton to North Cadbury, Cadbury Camp, Compton Church, and Mapperton. Luncheon was provided in the school-room at Compton. The day following the members were to leave Wincanton for Templecombe, Stowell, Milborne Wick encampment, Milborne Port, Henstridge, reaching Templecombe station at 7 p.m. The members were invited by the president to luncheon at Venn.

The report of the council, which was unanimously adopted, contained this paragraph:—"With the view of preserving, as far as may be, all the more interesting monuments of antiquity which are scattered over the country, your

council are strongly impressed with the necessity of placing them under the supervision of the State, and they would therefore recommend that a memorial be forwarded from the members of this society to her Majesty's Secretary of State for the Home Department, to urge on her Majesty's ministers to take such steps as shall effectually preserve the more important remains of past ages from injury and decay."

Mr. John Batten referred to the importance of the clause, and said that the subject had been taken up by the Society of Antiquaries, and this society would do well to follow in their steps. At the request of the president, Mr. Batten drew up and moved the following motion, which was seconded by Canon Meade, and unanimously carried:—"That it be an instruction to the council to procure a list of such memorials of the class referred to in the report as it would be desirable to place under the care of the State, and to obtain, if possible, the co-operation of the proprietors of those memorials in carrying out the wishes of the society."

YORKSHIRE.

The Huddersfield Archæological and Topographical Association have held their fourth annual excursion. At a special general meeting held in the course of the day, they resolved to change their name to the "Yorkshire Archæological and Topographical Association." The destination on this occasion was the ancient borough of Pontefract. The meeting comprised members from all parts of Yorkshire. The bulk of the excursionists arrived in Pontefract at a little after eleven o'clock, and were received and welcomed by Mr. William Jefferson, the mayor, who wore his chain of office. Lieut.-col. Brooke, the president, returned thanks, and the excursionists proceeded at once to examine the objects of interest in the neighbourhood, under the guidance of Mr. T. W. Tew, and the secretary, Mr. Fairless Barber.

Having inspected Swillington Tower and the Upper Guard House, where the courts of the Duchy of Lancaster were formerly held, the party proceeded to the remains of the famous old Castle of Pontefract, where a special general meeting was held, the president of the Association in the chair. The company then heard a paper by Mr. Tew on the history of the surrounding neighbourhood, with especial reference to the castle. They then proceeded to make a minute inspection of the remains of the castle. After admiring the present romantic aspect of the desolate but stately ruins, the walls of seemingly impregnable thickness, which formed a part of the artificial and natural defences of the castle, looking formidable even in their decay, and the remains of the gigantic keep, which has obstinately defied the ravages of ages, the antiquarians turned their attention to those parts of the old fortress which called for special study. After visiting St. Clement's Chapel, they proceeded by a long subterranean descending passage to the magazine, which is cut in the solid rock. The vaulted chamber in Pyer's Tower, in which King Richard II. is said to have perished, was regarded with interest, as were also the Barbican and the dungeon, in which we may suppose many prisoners to have languished.

On leaving the castle, the party wended their way to the rock-cut hermitage, which is one of the most interesting antiquities in Yorkshire. The inspection of the visitors was much facilitated by Mr. James Fowler, F.S.A., who read a paper on the history and character of the scene. He traced the history from the first mention of the hermitage by Thoresby, in 1703. It seems it was founded in the year 1386, by Adam de Laythorpe and his son Robert, and in 1433 became attached to Nostell Priory. There was a garden surrounding the dwelling of the hermit, which he might cultivate at his leisure, and from this runs a narrow passage, leading to what was the dwelling. An irregularly quadrilateral chamber cut in the rock is reached, and by descending another flight of steps, access to a spring of water of crystal purity is obtained. On the west side of this secluded dwelling is the cavity in the rock which served the hermit for a chapel. The altar and the reading-desk, also of rock, still remain intact, and on the opposite side to the altar is a settle, which must have been used by the hermit to repose or to meditate on, as did the Sibyl of Æneas in the cave at Cumæ.

From the Hermitage the company went to the Town Hall, where a museum, containing archæological curiosities, had been made up of loans from Lord Houghton and others of the leading gentry of the district. The MSS. formed the most interesting portion of the exhibition. They comprised the ancient charters of the town, from that of Richard Cœur de Lion, A.D. 1194. In this, the oldest of the charters, the borough is referred to as "Ponti Fracto." Relics of the earliest ages of the place were shown. The Church of St. Giles; an old house in which King James II. is said to have held his court, and which contains a fine old specimen of wood-carving; and a strange vault below the Malt Shovel public-house were next visited. The company then assembled in the Red Lion Hotel for luncheon.

At luncheon, the party was joined by a number of the distinguished residents of the neighbourhood. The president took the chair, and he was supported on his right by Lord Houghton, on the left by the mayor of the borough.

After luncheon, carriages were taken to All Saints' Church, which is mostly in ruins. The Rev. Sir Thomas Blomefield, bart., incumbent, received the visitors. Mr. J. T. Micklethwaite, F.S.A., read a paper descriptive of the place, which used to be called the Minster of the Moors. During the reading of the paper the company assembled in the transepts of the old building, which have recently been renovated for divine service. Special notice was directed to a remarkable double-stair in the tower, said to be almost the only specimen of the kind in England. A model of the staircase was exhibited in the church. The "New Hall" was the last object inspected by the party. This is an old ruined mansion of the latter part of the sixteenth century. Its history, from the earliest period down to the period when the mansion became possessed by the Earl of Harewood, was related by Mr. T. M. Tew, who accompanied his lecture with some sketches. Carriages were taken from the "New Hall" to the railway-station, where a large part of the company departed to their respective destinations. The trip was in every respect successful.

NORTH OXFORDSHIRE.

This society has just visited Burford, whose fine old church is now being restored under the superintendence of Mr. G. E. Street. The members of the society, with the addition of two gentlemen of the town, numbering sixteen, sat down afterwards to a dinner at the Bull Inn. Mr. Lockwood, of Kingham, a vice-president, presided. After dinner, the Rev. J. H. Burgess, vicar of Burford, read a paper on the history of Burford.

COMPULSORY EDUCATION IN SCOTLAND

THE subject of Compulsory Education occupied the attention of our fathers nearly three centuries ago. In an interesting volume, lately issued from the Glasgow press, entitled "Fiflana; or, Memorials of the East of Fife," by M. F. Conolly, the following extract from the record of the Kirk Session of Anstruther-Wester appears. As an evidence of the custom of the times, and the zeal of the Kirk Session, in enforcing the education of the youth, it is valuable. We give it in the quaint dialect of the period:—

"Oct. 26, 1595.—Anent the complent given by Henrie Cunyngham, doctor in the skcooll, the Session think meit that all the youth in the toun be caused to com to the school to be teached. And that sic as are puir shall be furnished vpon the comone expenses; and gif ony puir refuisis to com to schooll, help of sic thing as they neid and requir, shall be refused to them. And as for sic as are able to sustein their bairnes at the schooll, and do their dewtie to the teacher for them, thay sall be commandit to put them to schooll, that thay may be brocht vp in the feir of God and vertue. Quhilk if thay refuse to do thay sall be callit before the Session and admonished of their dewtie; and if efter admonishon, they mend not, then farther ordour shall be taken wt them at the discretion of the Session. And the magistrates and counsell shall be desyred to tak fra them the quarter payment for their child, and ane dewtie, efter ther discretion for the dayes meat, as it shall co about vnto them, whidder thay put ther bairnes to the school or not.

18 of November.—Anent the puire, it is thoet meit that a visitation shall be; and that sic help shall be maid te them that ar altogether vnable, that may not travell to themelfis. And the young shall get na almess bot on condition that thay cum to the schooll, quhilk sa mony as does shall be helpit; and the manner of ther help shall be—thay shall haif thrie hours granted to them everie day throw the toun to seek ther meit, ane hour in the morning fra nyn to ten, at mid-day fra twelt to ane, and at nycht fra six hours furth; and the peiple are to be desyred to be helpful to sic as will giv themself to any vertue, and as for others to deall lyarely with them, to dryve them to seik efter vertue.

April 13, 1596.—Everie man within the toun that hes bairnes suld put his bairnes to the schoolle, and for everie bairne suld give ten sh. in the quarter, and be fried of given meat bot a yr, owning plesure.

September 7, 1600.—Item anent the schooll:—Agreid with Henerie Cunyngham, that the pure of the toun shall be put to the [school], and sa many of them as has ingyne, and he taks paines upon them, sall giv fyv sh. in the quarter, quhilk the session sall pay. He sall try out the bairnes. They sall be brocht befoir the Session be the elders of the quarter; the Session sall enter them to the scule, and try ther perfiting, and sa caus recompens according to his pains and ther perfiting. And as for vther yt are not able to perfit, yt thay may reid or wret, whidder it be for want ingyn or tym to await on, sic shall be caused to lern the Lordis Prayer, the Comandes, and Belev, the heads of the Catechisme that are demanded on the examinatioun to the Communion, quhilk travell also the Session will acknowledge and recompense: and as for the standing yearlie dewtie, refers that to the counsel of the toun to tak ordour wt."

It will be seen by these extracts from records nearly three centuries old that the idea of compulsory education, is not a modern thought. Doubtless Scotland is much indebted to this wise provision of the Kirk Session (for it was common to other places in Scotland besides Anstruther Wester) that education among even her rural population has been in advance of the same class in England.

There is one drawback, however, to the above pleasing picture of early zeal in the cause of the education of the children of the poor. The Kirk Session, a little more than a century later in Anstruther, undid the good work of their predecessors, as the following record shows:—

"1 May, 1700.—The Session appoints aney thre elders to clear accounts with the schoolmaster, and pay what is due to him by the Session, against Whitsunday next, and likeways informe him that they have no design to keep aney Scholmaster nor Precentor, both upon account of the indisposition of the minister and the poverty of the place." On the 29th of the same month we are told curtly,—"This day Mr. David Ballingall, Schoolmaster, Precentor, and Session Clerk, did dimit."

Though the schoolmaster got the "sack" by the Kirk Session of Anstruther in 1700, he did not go abroad from other towns in Scotland. The disciples and followers of Knox kept knocking at the door in the interest of their church.

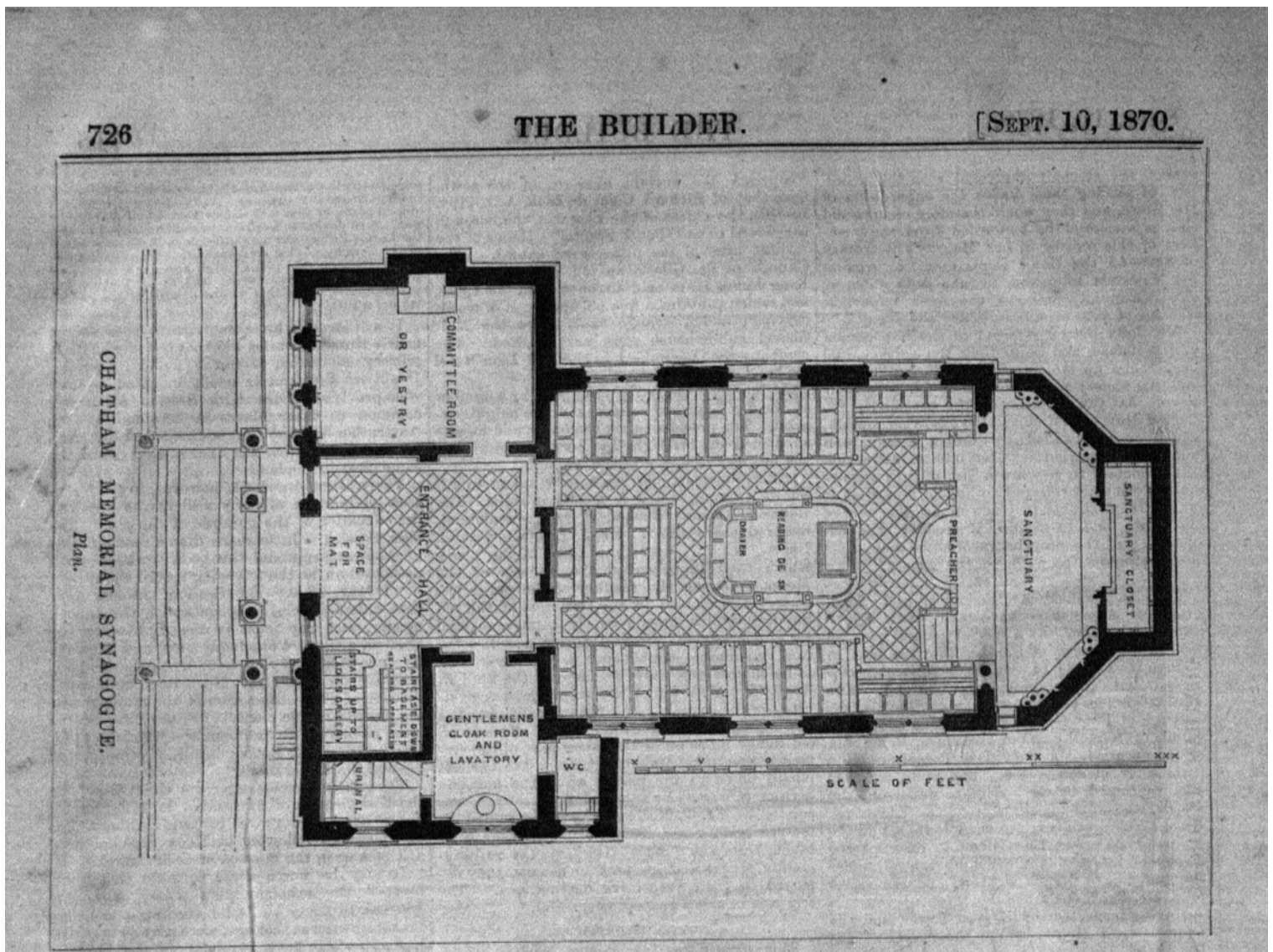
It may be worth while to state that "wee Davie" the schoolmaster's salary was only 16*l.* 13*s.* Scots, or 1*l.* 7*s.* 9*d.* sterling, a not very fat salary even at that age, more particularly if he had to perform his triple duties of session clerk, precentor, and schoolmaster.

CHATHAM MEMORIAL SYNAGOGUE.

THE building we are about to illustrate and describe has been erected in Chatham by Mr. Simon Magnus, in memory of his only son, Captain Lazarus Simon Magnus, who was cut off in his prime. Mr. Magnus purchased the site of the old synagogue, the Jewish burial-ground, and some land covered with houses fronting the High-street, and has erected a synagogue, a rabbi's residence, enlarged and adorned the cemetery, and given an endowment for the maintenance of public worship for ever,—expending on these monuments to the departed some 8,000*l.* The cemetery is approached by a road between the synagogue and the rabbi's residence.

We may premise that a marble tablet over the entrance portico records the cause of the erection and object of the building. And in the wall fronting the street, to the right of the entrance, is the foundation-stone, having an inscription. The tablet within the entrance-hall, "In memoriam," records that Lazarus Simon Magnus was born in April, 1825, and died January, 1865, aged 39.—"May his soul be bound up in the bundle of life everlasting."

The style adopted is that of the Byzantine period, adapted to the requirements of the present age. Recessed from the main road, and separated from it by an ornamental screen, the building is placed on a terrace, and is approached by a broad flight of steps which lead to a pedimented portico, composed of monolithic columns of Mansfield stone, having floriated caps and supporting semicircular arches. Over this portico is placed the marble tablet before mentioned. Surmounting the entrance is inscribed the Scriptural monition—"Keep thy foot when thou goest to the House of God" (*Ecclesiastes* v. 1). On the right of this portico, rising to a height of about 50 ft. from the ground, is a tower, which is terminated by a steepled roof, ornamented with gablets and finials. On the left is the committee-room, and behind the portico is seen the gabled and octagonal end of the synagogue, with bold wheeled window and other ornamental adjuncts. The whole of the erection is faced with Kentish rag-stone, with Bath stone dressings, having columns and enrichments of red Mansfield stone. Separated from the synagogue is the minister's house, treated in the same style, and being complete in itself. A broad walk divides the last building from the



CHATHAM MEMORIAL SYNAGOGUE.
Plan.

synagogue; and, from its commencement to its end, affords an uninterrupted view, from the High-street, of the tomb of the deceased Captain Magnus, which, raised on granite steps and platform, and surrounded by marble columns, appropriately and effectively terminates the vista.

Entering from the portico is a spacious hall, on the right of which is the staircase leading to the ladies' gallery, and the retiring-rooms of the gentlemen, and on the left of which is situated the committee and robing room. Immediately facing the entrance is a marble tablet, with the words "In Memoriam" engraved thereon in gilt letters, and an aspiration for the repose of the departed soul. From the hall we at once pass into the ground floor of the synagogue, appropriated exclusively for the male portion of the congregation. The interior consists of a nave of lofty proportions, divided into three compartments by arches composed of serrated and ornamental white and red bricks, with carved stone incised enrichments. These arches, springing from and being supported by clustered and coupled columns of red Mansfield stone, have floriated caps and bases, and rest on carved projecting corbels. On these arches are laid the timbers of the roof, which are of picked yellow deal, wrought and chamfered, covered with V-jointed boarding, enriched with carved fascias exposed to view, and stained and varnished in various tints. The walls, which are of white bricks, interspersed with carved stone enrichments, are pierced with traceried windows, three on each side of the synagogue, filled in with stained glass.

Facing the entrance, at the east end of the building (corresponding with the chancel of our churches), rises an enriched semicircular arch, supported on polished red Mansfield stone columns, bound together with ornamental bands, and having carved caps. On this arch is engraved, in Hebrew and English, the 4th verse of the 84th Psalm,—"Blessed are they that dwell in Thy house: they will be still praising Thee. Selah." Behind this archway, forming, as it were, a frame, and being the entrance to it, is situated "the sanctuary," separated from the nave by a carved stone screen, inlaid with various coloured marbles, and having wrought-iron panelling. In the centre of this screen is formed a convex recess, which will be used as a pulpit for the preacher. "The sanctuary" is elevated some few feet above the level of the floor of the synagogue, and is approached by broad flights of polished marble steps, with balustrading. This sacred portion of the edifice is designed as an octagonal apse, at each angle of which are disposed clustered pillars of variegated coloured marbles. From these pillars spring carved ribs supporting a domical ceiling, terminating in a skylight glazed with stained amber glass, which throws a subdued light over the whole composition. In the centre of the sanctuary is formed a deep recess designated as "The Ark," or resting-place of the scrolls of the Law (each scroll contains in Hebrew characters the five Books of Moses), which are deposited therein. This recess is inclosed by sliding doors, framed of costly wood, and enriched with arabesque and other ornamentation. The interior is hung with silk hangings and bullion fringes, and is fitted with a dais for the reception of the scrolls. Over the Ark is inscribed in gold letters the sacred warning,—"Know before whom thou standest;" and on each side of the same, surrounded with naturalistic floriation, are the inscriptions,—"Length of days is in her right hand," "And in her left riches and honour." (Prov. iii. 16.)

Over "The Ark" are two stained-glass windows, representing tablets of stone surmounted with "glories," and having the Ten Commandments written thereon in Hebrew. Each side of these tablets has two geometrical stained-glass windows. Under these windows are marble panels, in which are emblazoned, in illuminated writing, prayers for the Queen and Royal Family.

From the centre of the chancel arch drops a cut-glass dish, in which floats "The Light of Memorial." This has been presented by a member of the family in memory of his deceased wife (one of Mr. Magnus's daughters), as is testified by an illuminated inscription which it bears. On each side of the apse stands a candelabrum of five gas-lights.

The sanctuary is paved with Minton's choice tesselated encaustic paving, having polished marble borders.

In the centre of the nave is placed the reading-desk, from the platform of which the minister intones the prayers. It is approached from the floor of the synagogue by flights of steps on each side, and is inclosed by iron railings, picked out in blue and gold. At each salient point is positioned a pedestal in which are elevated brass pillar gas-standards.

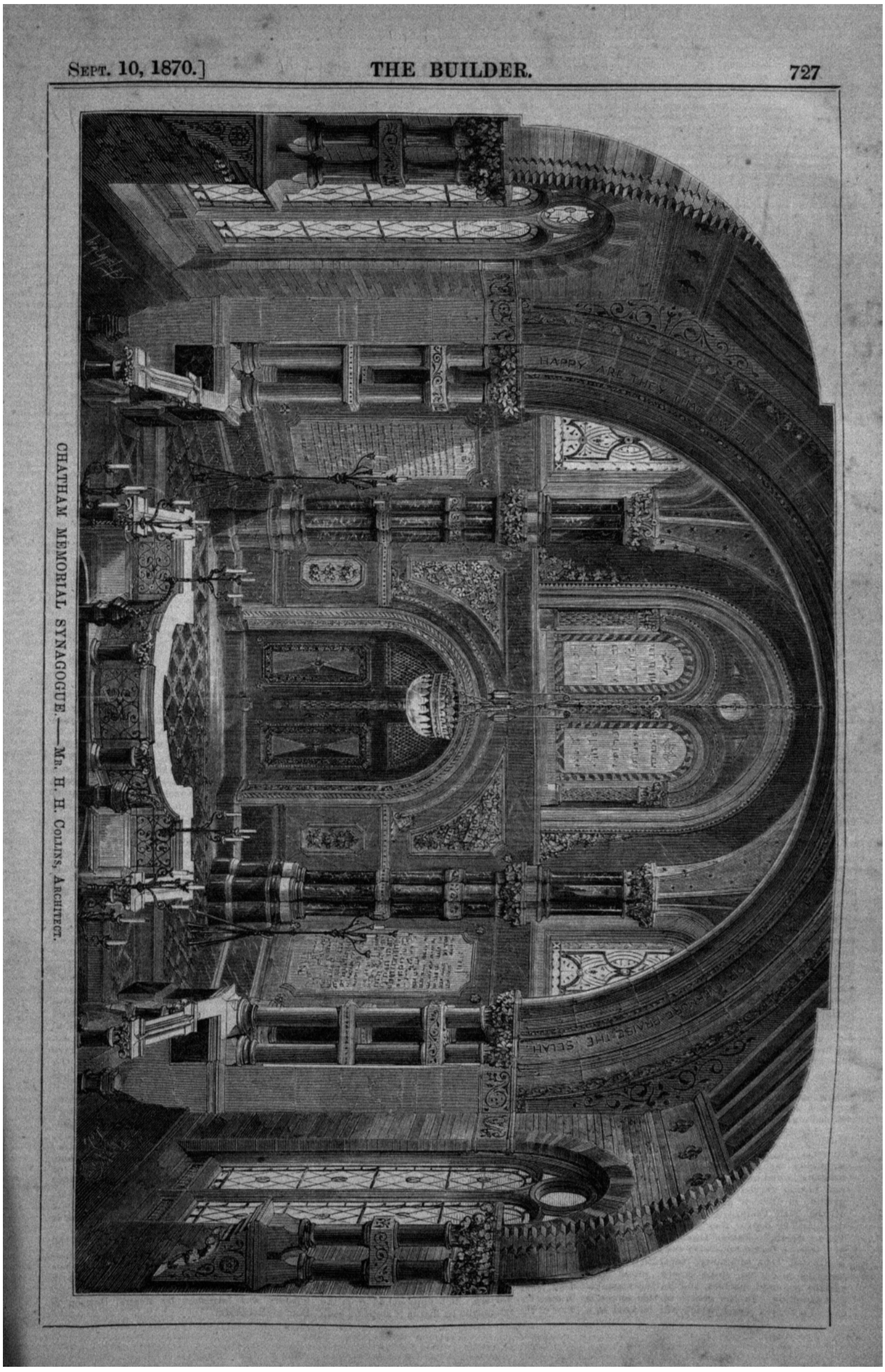
The pewing is arranged on each side of the reading-desk facing the sanctuary, except certain seats reserved for the founder and the wardens of the synagogue, which are disposed on each side of the chancel arch. Each seat is designed to turn up against the back of the same, so as to permit the congregation to stand during certain portions of the services; and each is furnished with a desk and foot-board.

Approached from the entrance-hall by the stone staircase before mentioned, having retiring-rooms, is the ladies' gallery, which, with its vestibule, is situated at the west end of the building, and faces the sanctuary.

The creed of the Jewish faith forbids the delineation of the human form, and the ornamentation has therefore been designed from natural foliage, conventionally treated, and arranged in geometrical combination. The carving has been studied from the plants mentioned in the Bible, and positioned so as to typify the several objects and uses for which the various portions of the building are devoted. Scattered about are to be noticed the lotus, vine, palm, olive, lily, pomegranate, wheat-ear, bulrush, &c. The construction and decoration throughout have been an effort to symbolise the character of the departed to whose memory the structure has been raised.

The architect is Mr. H. H. Collins, of London; the builder is Mr. Alderman Naylar, of Rochester; the gasfittings are by Messrs. Defries, of London, except the gas standards on the sanctuary, which are by Messrs. Brawn, of Birmingham; the ironwork is by Messrs. Jones & Blackstone, of London, and Messrs. Peard & Jackson, of London; the heating, hot water, and gasfitting are by Messrs. Spencelayh & Archer, of Chatham; the stone carving is by Messrs. Caudy & Gibbs, of London; and the decorative work is by Mr. John Durling, of Chatham.

The building is arranged to accommodate 150 persons on the ground floor, and has cost, exclusive of the site, about 6,000*l*. The stained glass windows were executed by Messrs. Smith & Miers, Cumberland Market, London; the upholstery was furnished by Messrs. Dawson & Son, of Rochester.



CHATHAM MEMORIAL SYNAGOGUE.—MR. H. H. COLLINS, ARCHITECT.

CASTLE NORTHWICH.

FOR a considerable period this increasing township has been suffering from a deficient water-supply. The question of constructing water-works has long been before the sewage committee, but it was not until after the drought of 1868 that decisive measures were taken in the matter.

In the early part of the year 1869 a survey of the township and plans were prepared for a water-works scheme, which, having been submitted to the Secretary of State for the Home Department, he gave his assent to the committee raising a loan on the security of the rates to carry out the works.

The principal works are erected near Moss-hill Farm, and consist of a well 6 ft. in diameter, which has been sunk to a depth of 32 ft., and indicates every appearance of yielding an ample supply of pure water.

In the engine-house, which has been built over the well, is a high-pressure horizontal engine, which lifts the water into a water-tower built on the high ground near the Winnington Branch Railway, the lift being 115 ft. The tower is circular, and 48 ft. in height. On the top is a wrought iron tank, 25 ft. in diameter and 10 ft. 6 in. in depth, and containing, when full, 32,000 gallons of water, or an estimated supply of a day and a half.

A road has been made from the engine and boiler-house to the tower, under which the supply-pipe is laid. The principal main from the tower is laid along Castle-street. The pipes from opposite Waterloo-road take a circuitous course along Navigation-road, Sandy-lane, St. James-road, and Waterloo-road: by this arrangement water can be passed in either direction, and it will prevent the lower district being totally without a supply in case of an accident. On the high portion of the township the pressure on the mains will be 45 ft., and on the lower 100 ft. Hydrants have been fixed on the mains opposite the principal property in the district, which will enable the committee to make arrangements for a fire brigade.

The contractors for the several works were Mr. C. Shaw, of Castle, for the erection of the tower, engine, and boiler house and chimney; Messrs. Milburn & Sons, of Staleybridge, for cast-iron pipes and tank; Mr. E. Sharp, of Lancaster, for valves and hydrants; Mr. J. Rutton, of Elland, for laying pipes; and Messrs. Holford & Shepherd, of Hyde, for the engine and boiler. The works were designed and carried out by Mr. Henry Bancroft, civil engineer, of Manchester.

ANCIENT EARTHWORKS AND ROUND PITS.

DURING the annual excursion of the Somerset Archæological Society, they visited Cadbury Camp. The Lord Bishop of Bath and Wells, with Lady Hervey, the Rev. Prebendary Scarth, and a large party, were present.

The centre of the camp is a lofty elevated plateau, above 30 acres in extent, and having a radius of view, it is said, of 30 miles.

The Bishop observed that of course the object of the ancient occupants was to take advantage of the natural formation of the ground, and to increase its defences as much as possible. At present, however, the beauty of the view, his lordship added, almost eclipsed its archæological interest. His lordship welcomed Mr. Scarth as one whom they were all glad to see present to enlighten them.

Prebendary Scarth replied to his lordship that the history of the "camp" went so far back into ancient times that it was almost impossible to say anything of it except by conjecture. The party having seated themselves around the edge of a hollow—forming a natural amphitheatre, the Rev. Prebendary stood in the midst, and remarked that the subject was one which was full of interest, but which it was very difficult to say anything certain about. He thought that all he could say, after examining this camp, and looking round the fortifications of the encampment, with the other camps of a similar kind in this country, but more especially in South Wales, and all that line of country which was occupied by the Britons previous to the Roman conquest, when Caractacus so nobly defended his country,—having himself examined those defences, he was inclined to think that everything showed this to have been an ancient British earthwork; and he thought the remains found within it tended to confirm that opinion. The chief features of this were the very strong ramparts with which it was surrounded, and more especially the entrances. The entrances were particularly curious from the way in which they were fortified, showing that they were of particular importance. He knew of no camp which showed the entrance so well defined as this, except that wonderful work, Maiden Castle, near Dorchester, which was one of the noblest and most wonderful works that existed in this country. He thought the earthwork they were now examining was only second to that. It did not appear to have had any Roman camp within it, as was sometimes found. There was a Roman camp within the British fortification at Clifton, for example. Again, the construction of the ramparts here, so far as he had been able to examine them, was very different from what they found at Clifton, where there was an inner core composed of lime and stone, a mass which could not be cut through. At the Society's meeting last year he had the opportunity of saying something on the camps at Clifton Down, and on each side of the Avon. Their ramparts were a solid mass of concrete, and that led us to suppose that the Romans must have had a hand in the formation of two of those camps at least. Here there was nothing of the kind; the ramparts were composed of lias stones and earth—the simplest kind of ramparts; the sort you would find at Maiden Castle. Then this did not lie at all in the line of a Roman road, so far as he could make out. It lay a considerable distance from the great fosse road, and also the road which ran along the top of the Mendip Hills; and although there might have been viscinal roads near it, it did not appear to have been a main point of occupation in Roman times. That was another confirmation of the opinion that it was an ancient British fortress. He thought on examining the ancient British fortresses they would find that the earlier ones were really the stronger. The indications we had of the way the Britons fortified themselves in ancient times showed that they were by no means an unskilled people. He thought we very much depreciated their condition at the time they were conquered by the Romans. He thought the very fact that a chief like Caractacus could stand against the whole Roman force seven years, and could for that time defend himself, showed that our ancient British forefathers were a people not at all to be despised. One point it was necessary to clear up. He did not know if there was a spring to be found within this camp—(a voice: "Yes; three springs")—there might be; but the truth was these great fortresses were not long occupied. They were only occupied in times of great national danger, when the cattle were driven in, and when perhaps the inhabitants of the whole district took refuge. It would have required a very large force to have besieged a camp of those times; and he did not think they were long held as places of permanent occupation, but only for temporary refuge. That belief was suggested to him by an inspection of Maiden Castle; and he saw points of resemblance in the New Zealand "pahs." He wished he could have thrown more light upon the camp.

Mr. W. A. Jones said Mr. Scarth would allow him to supplement the interesting observations which he had made by reminding them of what was said by their late secretary, Mr. Ward, who was one of the best authorities we had ever had in this county on earthworks. In the proceedings of the Society he described three types of earthworks, and he placed this amongst the kind which was only occupied in time of war. This camp differed from others in the absence of cattle inclosures. In most of the earthworks which we had in Somerset, and there were many of them, it was very clear that there was a portion which was occupied in time of war, and which corresponded to our keep. Then there was another inclosure fortified, but not to the same extent, and which would be fortified by the inhabitants of the district, who would come there probably as a permanent settlement. And beyond that they would have the cattle inclosure. Of course, at the time they were occupied, the ramparts of these mounds here were much sharper and steeper than they were now and were no doubt surrounded by wooden palings, which would render them still more difficult of access.

Rev. W. Barnes, who was next called upon, wished to speak a few words upon a discovery which had been made at Maiden Castle, inasmuch as he believed that discovery might give hints for other such discoveries in such strongholds as this and others. Some time ago the farmer who held the land was trying to make a sheep-pond at the top of the hill, *i.e.*, in the outer camp, the one we might assume to be the cattle camp; and within the space of a square sheep-pond he found no less than seven round pits: very round, very clearly cut, and about the size of wells, and from 4 ft. to 7 ft. deep. All of them were filled with a very black, loose, fatty earth, and that earth was found to be mainly of animal and vegetable substances. In the earth were found many interesting objects,—pieces of pottery; one of the stones of a quern; many bones, especially bones of reindeer; those bones showing at the same time what their animal food was in those days. Among the things found in one of those pits was a comb, which, it was shown, could not have been Roman, but belonged to a very early time. It was made of a flat bone—a sheep's, he believed—ground down, and the teeth were cut in the end, not in the side of it. Well, he believed that if the turf were taken off there would be found scores, if not hundreds, of those pits, for they were close together. He was opinion that the pits were made at various times. He had seen one instance where a pit was begun to be excavated, and evidently abandoned because it cut into the circle of another, which was an older pit, but still not so old that they could think fit to dig into it. He made those notes because he dared say they might readily find such pits here, and he hoped it would be tried. It was only to take an iron bar and try over the ground.

The Bishop inquired what Mr. Barnes thought those pits were for?

Mr. Barnes: Refuse-pits.

The Bishop: Not dwellings?

Mr. Barnes: By no means.

The Bishop: But that was one of the common forms of the earliest dwellings—pits where the circles touched one another, and I suppose were covered over with branches. Is that not the earliest acknowledged form of British dwellings?

Canon Meade mentioned Pen Pits, and another gentleman referred to those at Worle.

Mr. Barnes was understood to answer that there certainly were anciently house-pits with coverings over them; but that could not have been the case with those at Maiden Castle, because those pits were round and smooth, and there was no trace of a foot having gone into them.

Mr. Warren asked would they not have been very small?

Mr. Barnes said they ranged from the size of a small well to those of a larger size.

Mr. Warren should think they were rather small for refuse-pits.

Mr. Barnes said they were filled with what was no doubt animal and vegetable matter; and the farmer found it extraordinarily productive when applied as manure. Proceeding to offer a few notes on the "stone age," the rev. speaker said it so happened that speech tallied with history in so many points, and that our history as well as the Celtic speech ran back to the stone age. Now, we had the word "fint" and the word "chisel"; both those words belonged to the stone age, and expressed a solid Saxon image. Thus, the Teutonic word for arrow was *flean* (flies), and *et* was a diminutive added, making *fleanet*, or flint; therefore flint meant arrow. Chesil—such as the Chesil Beach near Weymouth—meant hard stone, pebble, or flint; therefore, that word was used when a chisel, or *ceosel*, was of stone. The word "hammer" meant a hard knob, a stone. These words, and many others he might mention, went back to the stone age, and were proofs of the Celtic age of our race.

Mr. E. T. Stevens followed with some remarks on the pits on Maiden Castle. Within the last week he had been negotiating for the purchase of those specimens found there. He would mention that he had particularly stipulated that if there should be any local museum or collector, he would waive all claim. He had lately examined, in the neighbourhood of Salisbury, a great many of those pits; and he had found remains almost identical with those which occurred at Maiden Newton. He had found three combs; and, if indications of workmanship, and also slight indications of shape, had anything to do with it, they would belong to three periods. Mr. Stevens gave a detailed description of the specimens, and also referred to discoveries at

another place near Salisbury, and in the Hebrides, and at "Grimes's Grave," Norfolk. He enlarged at some length upon the interesting evidences of ancient excavations for flints and chalk. The pits at Salisbury were clearly not of that form. He would give them a brief statement of the means by which those discoveries had been made. The ground was trenched for garden purposes, and they found all over the field that black patches occurred. His (Mr. Stevens's) idea was that they had been burning weeds there. The owner cut into the black earth, and he was not satisfied with that explanation. He went to work, and found himself in a chamber of a beehive shape, not at all of the straight sides which were found at Maiden Castle and elsewhere. It was a chamber of earth, about 6 ft. in height and 8 ft. in diameter. He not only found that, but, on working out one corner, he worked into a second, a third, and a fourth chamber of similar shape, and all communicating with each other; and there was likewise a semi-recess, with what object he was not prepared to say. Recently, when it was thought desirable to establish other waterworks in the neighbourhood of Salisbury, they found that the aperture was about 2 ft. 6 in. at the upper portion; it was enlarged downwards, and then swelled out into the chamber, and that was the invariable way in which the approach to these pits was made. Found in those pits were articles the same as they always rendered. There were a bone of *bos longifrons* worked into a hook, a bone ring, bone combs, a bone needle; very few flint tools; pottery, all hand-made, and the ornamentation of which was of a very peculiar and singular character. But while they found until a recent date, no evidence of an iron implement, all the flint tools that they found had been flaked by means of iron implements; and there were rust-marks upon them in almost every case. Mr. Stevens went on to speak of trenches which had been found around some of the pits, containing specimens of Roman pottery.

The President (Sir William Medlycott) said he would mention that through the kindness of Colonel Bennett, the proprietor of this hill, he had received a little pamphlet giving the history of North and South Cadbury, and which contained some very interesting points.

Descending to the main entrance, the party viewed the different lines of defence, and then, at the call of the secretary's whistle, accomplished the healthful exercise of re-ascending the hill.

Mr. Scarth pointed out how very strongly the entrance to the camp was protected. There were eight mounds or ridges, each with a ditch between them; and the road in was curved, so that the attacking force might be taken in flank. Of course, had that camp been well garrisoned it would have been almost impossible for any force to have taken it.

DECORATION OF ST. PAUL'S.

SIR,—In your number of the *Builder* for August 6th, in a letter signed "T. L. D." relating to "Colour and Architecture," it is stated, a "full argument upon the subject is now of the greatest consequence, as so large a sum as a quarter of a million has been suggested to be expended upon St. Paul's Cathedral, London." I quietly acquiesced in the matter; but as further comments have since been made in reference to the letter, I offer the following remarks:—

I quite agree no attempt should be made to make it "vie with the drawing-room or the theatre." I have seen in many churches a painful effect produced by too vivid colouring; in others I have seen the richest colouring in connexion with carving and gold look soft, unobtrusive, and beautiful. I have seen the simplest earth colours only used in ornamentation, but in such quantity and variety of design, it has been distressing; and I have also seen the whole surface decoration of a church in grey and stone-colour, slightly ornamented with black and red, and the effect has been excellent. It is the correct taste displayed in the selection of ornament and in the combination of colour that produces proper effect.

In all cases the style should be in accordance with the building, relative to its size and proportions, the quantity of light, whether natural or admitted through stained windows, and consistent with the worship offered. If it is where Roman Catholic worship is used, it may be as imaginative, suggestive, and devotional as it can possibly be; but if only used for ordinary preaching services, it would be absurd to introduce anything bright, suggestive, or varied in form which may take off the attention from the speaker.

It is remarked, "All the glorious effects produced by a flood of sunshine on the rich series of mouldings that clothe and charm the pier arches of our English cathedrals are irremediably lost the moment they are painted." I certainly think it depends upon how they are painted. The most glorious arch ever seen is the rainbow; but if it was simply stone-colour, I cannot imagine any flood of sunshine producing such gorgeous effect as the all-wise Creator's combination of the most vivid prismatic colouring does in that suggestive object of universal admiration.

In England a great part of the year there is a great dearth of such floods of sunshine. Much of the effect of stone carvings and mouldings is due to the accumulation of dust, dirt, and cobwebs, which, to the disgrace of the proper authorities, are allowed to remain year after year. Age is honourable, and to be looked upon with respect; but what a difference between looking upon an old man in rags, with unwashed face and uncombed hair, and seeing a well-dressed old man with pink face and white hair.

Our hearty thanks are due to those gentlemen who have brought forward the idea of decorating St. Paul's; and, as much interest has been awakened in the matter, I would suggest that search be made for all the papers, plans, designs, and correspondence of Sir Christopher Wren upon the subject by advertisement in the most public manner, and careful collection by those appointed; and, from what may be gathered, designs may be prepared by competent persons, and publicly exhibited, with specimen of the finished style of work in the same manner the cartoons were at Westminster Hall, that opportunity may be given, to persons who are solicited to subscribe liberally, of seeing the style and effect of what is intended to be done; and I hope, with Mr. E. L. Cutts (your correspondent), it may spread the fashion of completing our public buildings and create a school of artists capable of doing it worthily.

WILLIAM PITMAN.

ARBITRATION CASE AT SWINTON.

AN important case of arbitration has been heard at the Station Hotel, Swinton. Some time ago Messrs. Wilson, Tillotson, & Sykes, proprietors of the South Yorkshire Glass Bottle Company, at Swinton, commenced to build a wall round an exposed part of their works. All went satisfactorily until they enclosed a watercourse at the bottom end of their premises, which watercourse separates their property from that of Messrs. Windham & Sons, who objected to the Glass Company enclosing the watercourse, as it belonged to them (Messrs. Windham). The Glass Company, however, asserted their right to it, and continued to build. Messrs. Windham & Son accordingly instructed their workmen to pull the structure down, which they did. A serious altercation was the consequence, and it ended in legal proceedings being commenced by the Glass Bottle Company. The case was to have been tried at the Leeds Assizes; but, by the advice of counsel, it was referred to arbitration; and the case came on as previously stated. Mr. J. F. Barker, of Sheffield, was chosen arbitrator. Evidence was given, and the arbitrator and the counsel went over the property in dispute, and made a careful examination of the same. No adjudication was made.

SASHES.

SIR,—I read in your impression of last week a very interesting account of New St. Thomas's Hospital, by a working man. With regard to the latter portion of his letter, anent the hanging of sashes, I am rather curious to know what system he would adopt to obviate the several inconveniences attached to the present mode. I have made a great many window-frames and sashes myself on the balance-weight principle; but the idea often recurred to my mind that the sashes could be suspended simply by the elastic pressure of tongue-shaped springs applied laterally. This method would, I believe, secure the perfect working of the sash. It would cause it to travel smoothly and evenly, and never allow it to shake or rattle in the wind.

G. L.

ON FORCE AND MOTION.

SIR,—It is said to be a law of nature that all bodies have such an indifference to rest or motion, that if once at rest they must remain eternally so, unless acted upon by some power sufficient to move them. This is undoubtedly true; but that a body, once put in motion, will proceed of itself *ever* after in a straight line, if not diverted out of this course by some other influence, is, I think, a philosophical error. The generally received opinion founded upon this theory, that a cannon-ball discharged in vacuum, and not influenced by gravitation, would move for *ever*, I believe to be an error also, for the following reasons. The distance a cannon-ball is propelled through the atmosphere depends principally upon its shape and the force of gunpowder used; it is therefore probable that a cannon-ball might as easily be projected one hundred miles as one mile, if a commensurate force were employed. The same principle will apply to vacuum.

Seeing that matter cannot move without a moving cause, there can therefore be no motion without force, and that force must be continuous and infinite in order to produce continuous and infinite motion; so that however much greater distance a ball would travel in vacuum (compared with a resisting medium), its speed must gradually lessen and its motion eventually cease. The question may here arise, what is there to cause the ball to stop? I answer, the force being finite it is evident the distance traversed must be finite also, otherwise we are supposing an effect without a cause. With all due deference to scientific men, I believe the "cannon-ball theory," as I may term it, a complete fallacy.

J. KIPLING.

CASES UNDER METROPOLITAN BUILDING ACT.

FEES.

AT the Lambeth Police Court, Mr. Abraham Cohen, builder, of Southgate-road North, appeared to a summons for refusing to pay 2*l.* 1*s.* 3*d.*, due to Mr. Cæsar Alexander Long, the district surveyor for the district of St. Mary, Newington, and part of Lambeth.

Mr. Long said he surveyed the alterations made to the Jewish Synagogue, Walworth-road; but although he sent several times to defendant, he refused to pay the amount of fees.

Defendant said there had really been no additions or alterations to the building within the meaning of the Act. Before the building was completed it was found that the roof was too heavy, and caused the walls to bulge. In consequence, three buttresses were built. Those matters were, he contended, necessary repairs, and did not entitle the surveyor to the fees.

The magistrate said, according to defendant's own version it was clearly an alteration to the building, and not a repair, as meant by section 9 of the Act.

The surveyor said that section referred to necessary repairs, and nothing affecting external or party walls. The roof was found to be not sufficiently strong, and extra supports had to be put in. The walls bulged so dangerously that brick buttresses were obliged to be erected, and iron rods inserted to tie the work together.

The magistrate said it was quite clear the case for the complainant had been made out, and he should make the order for payment of the amount, with 2*s.* costs.

THE ROUND TOWERS OF EAST ANGLIA.

IN your review of Mr. Waring's work on "Stone Monuments," &c., you state, probably quoting from his book, that "there are about fifty round towers in Suffolk and Norfolk." Allow me to say that there are in these two counties nearly, if not quite, 170 round towers.

Not wishing to incumber your pages with the names of the whole of them, I may refer your readers to the *Journal of the British Archæological Association*, vol. xxi., p. 163, where 165 are mentioned, and this is an imperfect list.

Quoting, I still presume, from Mr. Waring, you say that the round towers in the Eastern Counties are but "a continuation, with adaptation, of the Irish idea in England."

To this I must demur; and I think Mr. Gordon Hills, who has examined, illustrated, and written upon the Irish Round Towers, will do the same. They are, in my opinion, of different date, and arise from different circumstances. The Irish round towers were probably of Christian origin, although of very early date; whilst those in East Anglia were certainly erected between the twelfth and fourteenth centuries.

The reason why the last were built circular is, to my idea, obvious. It was to save angles of freestone, a material not to be obtained, except by importation, in the eastern counties. All naves and chancels in Norfolk and Suffolk built with round towers have scarcely any, and, in most cases, no freestone quoins to the internal angles of the windows, doors, arches, &c., but are simply finished in rubble and plaster. In Ireland, however, the case was different; for there was an abundance of good building stone, and it is necessary to find some other reason for building towers in that form in that country.

R. M. PHIPSON.

MAN THE BOATS.

SIR,—The loss of life so frequently occurring in the lowering of boats at sea should induce inventive aid from all quarters, to lessen the danger attending when that duty has to be performed in bad weather.

It would appear that there are five objects desirable to be achieved, viz.:—

1. That it shall be impossible that the falls shall foul, either by becoming twisted or by the boat swinging round and causing the falls to foul each other.

2. That the man in the boat shall be able to lower it, having both the falls under his perfect command.

3. That he shall be able to cast off the falls momentarily, and, if necessary, simultaneously; and that they shall not become cast off until the boat has taken the water, nor one before the other, without his intention.

4. That the same falls shall be worked with facility from the poop or quarter-deck when re-hoisting the boat.

5. That the apparatus for achieving all this shall be readily understood, and not liable to get out of working order.

In the first place it would be advisable that the upper block shall be part of the davit, so that it cannot turn about of itself; so that when lowering the boat its sheaves shall be in an athwartship direction, which will give the opportunity to haul on the falls from the deck, which fulfils our fourth requirement.

It would next be advisable that the foremost and aftermost thwarts should be temporarily (to allow the boat to be washed out), but for the time securely fixed, and which could be so managed that it would be impossible to forget it and leave them unfixed (and to thereby cause an accident in lowering or hoisting the boat), by having between two of the knees of the boat an iron catch with a nose like a latch-bolt, which the end of the thwart must pass before it could be secured; and the iron catch should work on a pivot, and have a long iron arm attached to, or rather being part of it, which should, by means of a powerful spring or weight inseparable from it, remain pointing up in the way until such time as the thwart had been secured.

Then, having the thwart secured, we now

require that it shall be strong enough to bear the weight of the boat and man; then we require a block without a strap, but having a very substantial shell made of elm or iron to be attached to the thwart, so that it cannot turn about, but must remain athwart-ships to the boat; this may be managed by having the shell of the block of a square form, and by an axle being passed through it so that a pair of nippers at each end of the block can attach it to the thwart (properly prepared to receive them by having iron staples fixed underneath it), these nippers to work very much on the principle that those belonging to the monkey of a pile engine work, but in this case it would perhaps be advisable that they should not release themselves, but that they should require a pin to be drawn out (upwards, so that it could not fall out of itself), in order to let go the tackle.

Then the upper and lower blocks cannot turn nor allow the tackle to twist, which realises the first part of requirement No. 1.

If at about the boat's length apart two eye-bolts be screwed in a strake at the light water line, and, of course, in each case, into a futtock, and a couple of similar bolts were screwed (perpendicular to the former ones) through the berthing into the stanchions, and if a rope* were attached to each perpendicular pair of these, and strained moderately taut, then, if we have previously passed a good-sized and strong galvanised ring over this rope, and the same to the other, then, having to each ring a guide (or guy) rope spliced, and the end of each guy made fast, one to a ring in one end of one of the lower blocks of the falls with two half-hitches, this will effectually fulfil the other part of requirement No. 1.

With respect to requirement No. 2, this may, perhaps, be effected by Mr. Cooper's apparatus (I do not know exactly what it is), but it could be effected by the following method:—Both the falls having first been rove through (what I shall call) a double tube of, say, galvanised iron (this tube being similar in appearance to that of an opera-glass), then, having the falls conveniently placed in coils in the boat, the man, in lowering, can pay them out at pleasure.

One of the tubes of this double tape could be made to lock and unlock with a spring catch, so that it could permanently remain on the other fall, by having some contrivance (a hole in it and a small line to clove-hitch it to the fall) to that end.

In No. 3, we have not yet seen how to cast off the tackles simultaneously. This could be done by having a very small single block attached to each fall, at perhaps a foot from the lower end of each, and on that part of the tackle spliced to the lower block, and by having a couple of converging small lines rove through these small blocks, and their other ends attached to the vertical pins confining the nippers which attach the lower blocks to the thwarts, then pulling on these small lines will draw the pins and liberate the tackles simultaneously. The whole of the first four requirements are provided for, and care and judgment in carrying these out may show the fifth to be also accomplished; but I submit these suggestions, hoping that persons better informed than myself on seagoing experiences may indicate such improvements as may be possible, and cause the idea to be speedily put into execution.

HENRY AMBROSE.

ACCIDENTS.

Fall of a Building in Market-street, Manchester.—Some time ago the city surveyor condemned a block of old shops situate in Market-street, and lying between Palace-street and Marsden-square, on the ground that the buildings had become unsafe. In consequence of this, says the local *Courier*, Mr. Cheetham, the owner of the property, commenced to pull down the two central shops; but about a month ago, when the work was only half finished, a dispute occurred between him and the corporation. The result was that a large portion of the front walls was not pulled down, and remained standing, or rather leaning; and it required a strong nerve in those persons who beheld the threatening position of the walls to pass by them. On Monday morning the greater part of this mass of old brick and mortar fell, the *débris* completely covering the temporary wooden side-walk. Very fortunately no one was hurt. The remaining portion of the wall, which was left at an angle of 75 degrees, was pulled down in the course of the afternoon. It was also thought advisable to strengthen the shoring of one of the adjoining shops.

Fatal Accident at a Gentleman's House.—A shocking accident has taken place at Highbury-terrace. A man named William Lorragan, aged 35, was at work on a temporary scaffold, cleaning the paint of a well-staircase, when, from some cause at present unknown, he slipped off, and fell a distance of 30 ft. In the descent he came in contact with a gas-pipe. The skull was fractured, and he immediately expired.

* Of Newall & Co.'s patent wire ropes, and which, as it would be liable to violent and sudden tugs by the boat when in a storm, should be 3 in. or 4 in. in circumference. These ropes do not run up when wet when once set tight, nor stretch like hempen ropes, and for this purpose they would be peculiarly applicable, as being unlikely to catch or impede an iron ring passing up or down them; but as sea-water has a tendency to soften iron, it would be advisable to occasionally inspect their lower ends.

COMPETITION.

Penrith Cemetery.—In reply to the advertisement in our columns, designs by twenty-six competitors were sent in, and the design marked "Labor et spes," being by Mr. J. P. Pritchett, of Darlington, has been selected.

CHURCH-BUILDING NEWS.

Longbridge Hays.—The foundation-stone of a new school church has been laid at Longbridge Hays, a hamlet on the slope of the hill near Bradwell Wood, in the parish of Wolstanton. The population of Longbridge Hays exceeds 500, and the group of houses now standing there has sprung up within the last few years. There is no place of worship or public school there. The building to be erected will seat 180, and accommodate 125 children for educational purposes. It will be 42 ft. by 20 ft., with a class-room, 16 ft. by 14 ft. Mr. Lewes, of Newcastle, is the architect, and Messrs. Bennett & Cooke, of Burslem, have contracted to do the work.

Brighton.—The memorial stone of the Countess of Huntingdon's Church, North-street, Brighton, on the site of the edifice recently pulled down, has been laid by Lord Shaftesbury.

Darlington.—The chief stone of a new church has been laid at the village of Middleton-One-Row. It will be a chapel of ease for the use of the Middleton parishioners. About 800*l.* have been obtained towards the 1,600*l.* which will be required. The church will be Early Decorated, and the architect is Mr. W. P. Pritchett, of Darlington.

Bridgnorth.—The cost of rebuilding the tower of St. Leonard's Church is likely to be considerably more than was at first calculated upon. In reply to tenders solicited from well-known building firms, the three following only have transmitted their estimates, viz., Messrs. Lovatt, Wolverhampton, 5,990*l.*; Messrs. Nevett, Ironbridge, 5,770*l.*; Messrs. Estcourt, Gloucester, 4,100*l.* This charge is exclusive of chimes, stained-glass window, architect's commission, the clerk of the works, or the expense of taking down the old tower, which is estimated to amount to between 700*l.* and 800*l.*; but there will be realised about 700*l.* for the application of the old stones in the completion of the undertaking, whichever estimate may be accepted. The original estimate was from 2,500*l.* to 3,000*l.*

Gunby St. Peter's.—A new church has been opened in this sequestered village, which lies near the Burgh station on the East Lincolnshire Railway. The old church, a plain, whitewashed building, was erected about 1634. This, after having undergone several alterations, was rapidly falling into decay, when, in 1868, Mr. Fowler, of Louth, furnished a design, which has been carried out at a cost of about 1,300*l.* The only objects of interest belonging to the old church which could be retained in the new were two brasses.

Oldham. — The foundation-stone of St. Andrew's Church was laid by the bishop of the diocese on the 20th ult. The plan comprises nave, 73 ft. by 29 ft., and 58 ft. high, with side aisles and transepts. The chancel will be 27 ft. by 22 ft., in which are the stalls for choir. The tower is at the east end, forming one of the principal entrances. It is in the Early English style of architecture. The exterior will be faced with red stocks, relieved with bands of different tints, and stone dressings to the several doors and windows. The roofs are of high pitch, with open framed principals, and covered with slates of varied tints, with enriched tiling. Accommodation will be provided for 638 persons, and the estimated cost is 3,300*l.* The contractor for the foundations is Mr. J. Robinson, jun., Hyde; and the architect, Mr. John Lowe, Manchester.

Huddersfield.—The new church of St. Andrew, at Lane, Leeds-road, has been consecrated. The edifice is rectangular in form, and comprises nave with north and south aisles, chancel with north chapel for school children, and south chapel for organ chamber and vestry. The porch is placed on the south side, and it is intended, at some future time, to erect a tower and spire, 135 ft. high, at the west end, the foundations for which are already in. The extreme length of the church, from east to west, is 92 ft.; the breadth, 55 ft.; and the height, to ridge of nave, 48 ft. The nave is 55 ft. long by 22 ft. wide inside dimensions, and the chancel 29 ft. 6 in. by 22 ft., and is divided from the nave by a pointed arch of lofty proportions supported in clustered shafts with carved caps. The nave is separated from the aisles by an arcade of two wide bays and a smaller one opposite the porch at the west end. The larger bays are 19 ft. wide, thus affording little or no obstruction to the view, having only one circular shaft on either side. The chancel is separated from the chapels by arcades partly filled in with open wood screens. The nave roof is constructed of hammer-beam trusses, with open traceried spandrels and moulded ribs in square panels which are filled in with plaster, forming a coved ceiling. The chancel roof is similar without the trusses, and with an addition of carved bosses at the intersection of ribs. The aisles and chapel roofs are open, and the whole of the woodwork is stained dark and varnished. The seats are open and drab stained and varnished, and the chancel stalls have open-traceried fronts and carved poppy-heads. The church stands upon an elevated site, and is Late Decorated in character, the windows throughout being enriched with tracery. The edifice is warmed with hot water from an apparatus under the vestry. The font and pulpit, which are intended as memorials, have been erected by Mr. Thomas Earp, of London, sculptor; and the carving throughout the church by Mr. Stevens, of Dewsbury. The west gable presents an unfinished appearance, pending the erection of the tower and spire. The architect was Mr. Wm. H. Crossland, of Leeds and London; clerk of the works, Mr. Jonathan Parsons; masons, Messrs. Thomas & George Rhodes; joiner, William Roberts; slaters, William Goodwin & Sons; plasterer, William Kitching; plumber, H. Garton; painter, George Brighouse. The church is intended to seat 500 persons, and the estimated cost, including boundary walls, was about 4,300*l.*

King's Norton.—A public meeting of the parishioners of King's Norton has been held, for the purpose of receiving a report from the committee appointed at the Easter vestry to consider the present state of the church. The vicar presided, and read extracts from the report of Mr. Hopkins, of Worcester, architect, in reference to the repairs necessary. These were embodied in the report of the committee, which was read. It stated that the architect recommends a thorough restoration of the whole fabric of the tower and spire, including the removal of all decayed stones, and the substitution of fresh ones; and urges the undertaking the repairs, which he considers necessary, without delay. The committee strongly recommend the acting on the architect's suggestions. The cost of this portion of the work he estimates at about 500*l.* They consider that the particulars of the restoration specified by the architect, viz.,—new roof for the nave and aisles (the present woodwork being used up for the latter), the rebuilding of the north wall, the setting upright the pillars and arches of this aisle, the removal of the vestry, and the restoration of the parapet on both sides,—should not exceed in cost 2,000*l.*, making, with the sums required for the tower and spire, a total of 2,500*l.* The report was approved of, and a committee appointed to carry out the objects of the meeting. The sum of 1,280*l.*,—about half the required amount,—has been subscribed.

Buckhurst-hill.—St. John's Church has been reopened for divine service. The church as it now stands, consists of two aisles, nave, and chancel. It is of Geometrical Gothic style, the material used being Kentish rag stone, with Bath stone dressings and windows. The new aisle affords additional accommodation for about 150 persons.

Barmby-on-the-Marsh.—The corner-stone for the restoration of the chancel of St. Helen's

Church has been laid. The work is to be done by Mr. Elliott, of Goole, according to plans prepared by Messrs. Hadfield & Son, of Sheffield, architects.

Bradford.—The contracts for the erection of the new church at Ripleyville have been let. This is the last of the ten churches as the result of the church-building movement begun at Bradford in 1860, and is to be a memorial church erected to the memory of the late Mr. Charles Hardy. A suitable site has been given by Mr. Ripley, and the sum of 1,000*l.* is required to complete the estimated outlay.

DISSENTING CHURCH BUILDING NEWS.

Burton.—The memorial foundation-stones of a new Wesleyan chapel, in Station-street, Burton-on-Trent, have been laid by Mr. M. A. Bass, M.P., and Mr. T. Hazlehurst, of Runcorn. The site of the proposed edifice is a plot of land opposite the Midland Hotel (750 yards in area), which the trustees some time ago purchased from the Marquis of Anglesey for 1,500*l.*; and the style of the chapel is to be Gothic of the Early Decorated period. The elevation to Station-street will have a large gable, pierced by a five-light window, below which there will be a canopied entrance. The tower and spire will together reach the height of 120 ft. to the top of the weather vane. The Union-street elevation will be broken up by four pointed gables, each of which will contain two-light windows, to give light to the body and galleries. The plan of the chapel is in form a parallelogram, being 60 ft. long on the ground floor, 84 ft. on the gallery, and 51 ft. in width. The main body will be divided into four bays by light iron columns, with moulded capitals, these columns being used to support the framed principals of the roof, which will be exposed and stained, and of somewhat elaborate construction, the spandrels being filled in with open tracery-work. The height to the top of the ridge will be 63 ft., and to the highest point of the ceiling line 46 ft. 6 in. The accommodation provided will be for 860 adults. The materials used in the erection will be pressed brick facings, with Bath stone dressings to doors, windows, quoins, plinths, &c. The spire will be slated in bands of two colours. The design is that of Mr. Edward Holmes, of Birmingham and Burton, architect; and the work let to Mr. Lilley, of Measham, and Mr. D. Bassett, of Burton, for 3,365*l.*

Dudley.—A new Wesleyan Chapel has been opened here for divine service. The façade of the chapel is broken by the introduction of three wide arches, forming the front of an open portico, supported on carved caps and moulded columns. A large wheel window forms the chief feature of the centre gable. The front is flanked on the one side by a tower and steep slated spire, and on the other by a continuation of the principal front. The façade is further broken up by means of buttresses, and flat buttresses relieve the plainness of the sides. The chapel is built of red brick, relieved by Bath stone dressings. The total cost has been 3,000*l.*

Melton Moubray.—The architect and building committee of a new Wesleyan chapel here have met, for the purpose of receiving tenders for the erection of the proposed building. They were seven in number, and the lowest was considerably more than was expected. Mr. Herbert, of Leicester, 3,015*l.*, less 250*l.* for the material of the old chapel; Mr. Wileman, of Burton, 2,750*l.* net; Mr. Barnes, Melton, 2,699*l.*, less 200*l.* for old material; Mr. Fast, Melton, 2,577*l.*, less 309*l.* for old material; Mr. Perkins, of Leicester, 2,556*l.*, less 246*l.* for all material; Messrs. Stevenson & Weston, of Nottingham, 2,510*l.*, less 156*l.* 10*s.* for old materials; Mr. Robert Weaver, of Melton, 2,490*l.* 15*s.*, less 260*l.* 10*s.* for old materials; Mr. Winkles, of Leicester, 2,300*l.*, less 300*l.* for old materials. The lowest tender, that of Mr. Winkles, of Leicester, was accepted, and the old chapel was to be vacated and placed in the contractor's hands by the 23rd inst.

Hull.—The foundation-stone of a new Wesleyan chapel, of large dimensions, has been laid here. The situation chosen as the site of the edifice is in the fast-increasing district round Coltman-street. The architect is Mr. Botterill. The edifice will be 90 ft. in length, by 47 ft. in width, in the Decorated Gothic style.

Lightcliffe.—The foundation-stones of a new Congregational church, and a minister's house, at Lightcliffe, have been laid by Miss Helen and Miss Ada Salt. The site of the new buildings is on a piece of ground near the old chapel, and on the Whitehall-road. The new church has been designed by Messrs. Lockwood & Mawson, architects, Bradford. The edifice is in the Geometric Gothic style, and is to consist of a nave, side aisles, transepts, and an organ-chapel. At the western end of the nave there is to be a gallery for the school children, and at the eastern end there are to be erected convenient minister's, deacons', and ladies' vestries. On the south-west angle of the building a tower and spire are to be erected, which together will rise to a height of 151 ft., and under which will be one of the principal entrances to the church. At the south-east corner access is to be provided by a covered porch and centre vestibules. The greatest internal length of the church is to be 87 ft., the width across the nave 50 ft., and across the transept 66 ft. It will afford accommodation to 500 adults and seventy children. At the west end the nave is to be lighted by five-light traceried windows of two orders, the mullions having moulded shafts and carved capitals and bases. At each transept is a large four-light traceried window of one order. The aisles are to be lighted by two-light traceried windows. The western gable has pinnacles, crocketed gable copings, and is surmounted by a foliated cross rising to a height of 55 ft. The belfry-stage of the tower has deeply moulded and recessed tracery windows of two lights on each face, and filled in with ornamental cut slate louvres. The junction of the tower and spire will present a pierced battlement, octagonal angle pinnacles, pyramidal shelvings, and lucerne lights. The whole of the exterior walling is to be constructed of local delf-stone, with ashlar dressings to the jambs, plinths, and buttress shelvings, and each front of the building will correspond in its architecture with the principal façade. Internally, the nave will be divided from the aisles by polished columns of Shap granite, resting on moulded stone bases and supporting carved capitals, from which will spring moulded ashlar arches. The transept and organ-chapel arches are to be of moulded ashlar work also, and they will spring from detached cylinders of Robin Hood stone, supported on carved and moulded stone corbels. The interior dressings of the windows are to be of ashlar work, all bosted. The clear-story will be lofty, and lighted by ten single-light windows on each side. The roofs are to be of open timber construction, with dressed framings and spars, and throughout they will have a space between the slates and the ceilings, and will also be covered with felt, so as to preserve an equal temperature winter and summer. The seats are to be of red deal, painted and varnished. The pulpit, lectern, and choir seats will correspond. The heating and ventilating arrangements are to be executed by Messrs. Haden, of Trowbridge. The minister's house is to be erected on the upper portion of the site, and will be of a style to correspond with the church. The cost of building the church and house will be about 6,500*l.*

Reading.—The foundation stone of a new school-chapel for the Wesleyans has been laid by Mr. J. T. Waterhouse, of Honolulu, Sandwich Islands. The site of the chapel is on a piece of land lately occupied by two cottages in Spring-gardens. The new chapel is designed to answer the joint purposes of religious services and Sunday-school. Mr. S. Whiting, of the Grove, is the builder; and the entire cost, including the site, will be about 490*l.* When built, the chapel will seat 200 persons.

FROM AUSTRALIA.

Melbourne.—So far had the new Town-hall advanced towards completion, that its formal inauguration, by latest news, had been fixed for the 9th of August; and the ceremonial was to be on a grand scale. It was proposed in the City Council to vote 2,000*l.*, in order to defray the expenses of the occasion, but Mr. Amess, the mayor, at once declared that not a shilling should be expended but what came out of his own pocket. A number of gentlemen have raised by subscription a handsome sum, for the purpose of presenting to him a gold mayoral chain. —— Vigorous steps are being taken to carry out the designs of the promoters of the Williamston School of Design. Materials and drawings have been purchased, and it is expected that a good start will be effected.

The Belfast Harbour Works.—The object of the works in Belfast Harbour is to preserve the force of the current over the shifting sand, by confining it between deeper walls till it reaches the deep water outside, making the current from the west act as a constant dredge, clearing a way for itself, and never requiring artificial aid to preserve its depth. Fortunately the material is as abundant and as near at hand as could be desired, the passage being lined with huge blue-stone boulders which are carried on trucks to the end of the wall, and thrown down on the sand, which they rapidly displace by their greater weight till they reach the solid ground beneath. As the walls are extended, not only is all the sand between them carried out by the current, and deposited on the beach at either side behind the walls, but a deep channel is formed a couple of hundred feet beyond them. It is consequently expected that the coasting vessels of lighter draught will be able to come up the river into Belfast before the walls reach the point where the surf breaks over the bar. The width between the walls at their base is 180 ft., and so great is the force of the current that the agents for the Western steamer have already had to get a steam-tug to tow up the lighters to the wharf. The north wall, which extends from the main land, is eighteen chains long, 12 ft. wide on top, with side slopes of 2 ft. to 1 ft., and contains 7,230 cubic yards of stone. The top of it is 7 ft. above low-water mark. The south wall is now twenty-seven chains long, but a great part of this length is extended back from the sea wall in order to form a tramway from the quarries. It is but 8 ft. wide on the top, and rises only 5 ft. above low-water mark, containing 5,750 cubic yards. The work was commenced on the 15th of January, 1869, by Messrs. Gibson, Brothers, for the Public Works Department. The large quantity of stone work required has cost 4,500*l.*, which is, we understand, unprecedentedly cheap. It is carried out under the superintendence of Mr. Bell, acting under the district inspector, Mr. Todd. The original plan of the work was given by Mr. Moriarty, the engineer for rivers and harbours to the New South Wales Government, and Mr. Wardell accepted Mr. Moriarty's plan, modifying it only after borings and observations of the currents, &c. The inhabitants of a great part of the Western district anticipate important advantages from this work in transmitting produce to Melbourne and otherwise.

Adelaide.—Captain Sherard Osborne has arrived in Adelaide as the representative of the British Australian Telegraph Company. The object of his visit is to effect arrangements with the South Australian Government in reference to the establishment of a telegraph station at Port Darwin, in the northern territory; and also of a land line from that point to Burke Town, on the Gulf of Carpentaria. The Government of South Australia have been considering whether a direct line from Port Darwin to Port Augusta, at the head of Spencer's Gulf, would not be a better means of communication than the route projected by the company. Another question has been raised—viz., Would it not be safer to bring the submarine cable direct from Galle to Western Australia, than take it round by the Straits of Singapore and Java, where it must be exposed to danger from the coral reefs which lie thick at the bottom of those seas.

Books Received.

A BUNDLE of books from Cassell & Co. is before us. We will take a paragraph or two from some of them. From "Illustrated Travels" we get some account of the Turkistan Museum at St. Petersburg:—"On a raised platform beside the door (where he is kept in countenance by two smaller specimens of the same breed) figures an enormous mountain-sheep, of the argali or 'big horn' species, with the short greyish hair of a chamois, and vast curled horns, more than 2 ft. long and as thick as a man's leg. This distinguished foreigner, however, though ranking first in the collection, is not from Turkistan, but from Siberia; as it were a true-born Russian subject placed as a sentinel over the foreign intruders. Farther on, appear two wide-winged vultures, lean and loathsome as the worst of their kind, fighting over the torn remnants of a hare,—a group which might suggest to the historian a struggle yet to be between Russia and Afghanistan over the carcass of prostrate Bokhara. Around the walls are ranged skulls and bones of strange animals hitherto unknown to Russia; tawny skins of the tiger and ocelot hanging peacefully beside those of the mountain

goat and deer; fish from the waters of the Tchirtchik, and birds from the slopes of the Thian-Shan. On the more distant tables appear bright-hued lizards and curious insects, minerals dug from the hills of Khodjend, and fossil shells entombed before the name of Russia was known." The "Household Guide" speaks thus as to "Painting Fans":—"The painting of paper fans differs from ordinary water-colour drawing, inasmuch as what is technically known as 'texture' cannot in the former be attained by the use of thick rough paper: the lightness and neatness essential to the fan demand that a thinner and finer paper should be used; and this should be made from linen rag, to enable it to bear repeated folding. The fact of this smooth paper being used renders desirable the employment of stippling rather than of washes, in the colouring. Where gold and silver are required, the painter may use the ordinary illuminating shell gold or silver; or, if he prefers gold or silver leaf, he may use, to fix it, a size composed of gum-arabic, sugar-candy, a small quantity of honey, melted in pure water, mixed with a little brandy, and applied with a camel-hair pencil. This preparation was long kept a profound secret by the fan-makers. When dry, burnishing may be accomplished by piling a number of mounts together, and pressing them." The "Popular Educator" gives us the following as to "Value of the Larch Tree:"—"It would be difficult to over-estimate the importance to be attached to the cultivation of this valuable tree in situations where little else could be grown. The Athol family have been celebrated for their zeal in the cause of larch growth. The extent to which their fir-tree cultivation has been carried on in Scotland will be best shown by a reference to the following statistics:—14,096,719 young larch trees were planted in the neighbourhood of Blair Athol and Dunkeld. The plantation covered a tract of land 10,324 imperial acres in extent. The trees flourished and grew rapidly, and on felling one, at the ninety-fifth year of its growth, it was found to be 100 ft. long, 10 ft. 6½ in. in girth, at 5 ft. from the point at which it was cut through. It contained 368 cubic feet of timber. It has been truly said that the man who plants good trees abundantly stores up wealth for those who follow. An approximate calculation has been made as to the money value of the vast fir forests thus raised by one man's strong will and industry, and the sum arrived at is 6,500,000*l*. In addition to this princely sum we must estimate the thinnings and trimmings as being worth about 7*l*. per acre of forest. At the death of this noble pine-tree planter, a coffin was constructed from the wood of one of his forest favourites, which, on being felled, measured 106 ft. in length.'"——Messrs. W. H. & L. Collingridge, of the *City Press*, announce for publication, early in December, the "City Directory." According to the prospectus, all matters of interest to traders in, and connected with, the city of London, as well as banking, insurance, public companies, parochial and official, will be specially attended to.——Mr. James Hogg, the founder of *London Society*, and sole editor of the first seventeen volumes of that work, has just ceased to have any connexion with it. He is now about to start *English Society*, aided by those with whom he has been long associated. Colour printing will be applied in illustrating it.——Mr. Arthur Hill, A.R.I.B.A., of Cork, has announced his intention of shortly issuing lithographic drawings and photographs, with descriptive letterpress, illustrating the architecture and present condition of Ardfert Cathedral, county Kerry. Mr. Hill says he has two very interesting Celtic churches in hand that will be issued shortly after Ardfert Cathedral, viz., Kilmalkedar, near Dingle, and Temple-na-hoe at Ardfert.

Miscellanea.

Melton Mowbray Union Workhouse.—The new infirmary, which has been some time in course of erection, is now complete and occupied. The fever-wards are quite distinct, having separate airing-yards. The nurses' apartments, kitchen, and surgery are in the centre of the building, and in direct communication with both male and female wards. Other extensive alterations have also been made in connexion with the children's wards. The works have been carried out by Mr. J. Fast, builder, from the designs and under the superintendence of Mr. R. W. Johnson, architect, both of Melton Mowbray.

Geography for the Volunteers. — Commenting on the impulse given by the War to the study of geography, and the superior acquirements in this direction by the German soldier over the French, the *Publisher's Circular* says,—"Can we not extract honey out of the carcass of this lion? The educated German soldier, drawn not exclusively from the poor, but from the nobility, gentry, and middle classes, studies his map, knows his country, finds his billet, or the shelter of a hill, or the copse which will conceal him. All his movements are regulated by knowledge; his confidence in his generals is sound, because based upon knowledge; his obedience is not hesitating, because it is not blindfold. Suppose, in the interest of publishers, and of course of the nation, we should propose an elementary study of geography, of fortification, of science, to all our volunteers? Let us presume that prizes should be given away, not only for correct shooting, but for correct knowledge in a dozen duties which the present war has shown to be equally important, would not such not only develop new sources of industry, and therefore new sources of pleasure and true happiness, but also add to the usefulness and efficiency of our volunteer force? One thing is certain—the ignorant, the brutal, the unreflecting soldier is now a thing of the past; and publishers may find future consolation in the fact that Shakspeare's phrase has become a fulfilled prophecy: 'Oh, sir; we fight by the book.'"

A Church by Overtime.—The *Louisville Commercial* states that about fifteen years ago two brothers named Clark, carriage-makers, came from Newark, N.J., and settled in Georgetown, Kentucky. They were Episcopalians, but found no one to worship with them in the place. In the course of ten years a handful of churchmen was gathered, and they bought a site for a church. This done, about five years ago the Messrs. Clark designed an edifice, and to-day it stands a monument to their faith, energy, and skill. "With their own hands they quarried the stone: at times when their carriage business was slack, and when a sufficient quantity of stone was ready, they set to work at the foundation upon which to rear the present structure. When the stonework was finally completed by their own exertions, the brothers began upon the woodwork, all of which was planned, made, and fitted by them, the work being done between six o'clock p.m., after their business had ceased, and twelve o'clock at night. In like manner the entire church, from basement to belfry, has been carried to completion by these gentlemen. The church is Gothic in style, and, if built in Louisville, would cost 15,000 dols. The amount of money actually expended in its construction was but 6,000 dols. The Messrs. Clark are now buying old brass and copper from children, which they will use, when enough has been bought, in casting a bell." This church, consecrated by so much toil, has just been completed, and on the 23rd of June it was dedicated by Bishop Cummins.

Value of Land at Wells.—Mr. E. Hippisley, auctioneer, of Wells, sold a freehold estate, consisting of a very good farmhouse, convenient farm buildings, and divers closes of pasture, orchard and arable, containing together nearly 90 acres, and known as the Sugar-loaf Farm. The estate was offered in thirteen lots, and they were all sold, at the following sums:—Lot 1, 39a. 0r. 31p., comprising the homestead, outbuildings, orchard, and land, 4,200*l*.; lot 2, 9a. 2r. 10p. of pasture and arable land, 900*l*.; lot 3, pasture, 5a. 2r. 28p., 500*l*.; lot 4, arable, 1a. 3r. 9p., 170*l*.; lot 5, arable and orchard, 2a. 1r. 16p., 230*l*.; lot 6, pasture, 1a. 1r. 20p., 170*l*.; lot 7, pasture, 6a. 0r. 20p., 170*l*.; lot 8, pasture, 5a. 3r. 11p., 625*l*.; lot 9, pasture, 4a. 2r. 6p., 530*l*.; lot 10, pasture, 7a. 0r. 20p., 930*l*.; lot 11, arable, half an acre, 68*l*.; lot 12, pasture, 1a. 1r. 15p., 172*l*.; lot 13, pasture, 1a. 3r. 6p., 234*l*.; making a total of 9,439*l*.; and with the timber, valued at 137*l*. 2s., the sum of 9,576*l*. 2s., being an average of nearly 107*l*. an acre.

New Building Sites for Dorking.—A few of the leading townsmen, it is said, have joined together and purchased Holloway Farm, situate on the Horsham-road, as a site for building purposes. The land is about 45 acres in extent, and it is contemplated to lay it out in plots of a size sufficient to erect a superior class of villa residences.

Newspaper Press Fund.—Mr. John Byrne, Jun., has been elected Secretary. There were 100 applicants for the post.

A Joiner's Case.—At the Edinburgh Small Debt Court, a case of some interest to joiners has been disposed of by Sheriff Hallard. Robert Watson, joiner, Dalry Park-terrace, sued William Brown, house-carpenter, Charlotte-square-lane, for 8s. 6d., which he alleged to be due to him for work done for the defender on the 16th and 17th of June. The defence was that the pursuer left his employment without giving warning; and that this was contrary to the practice of the trade. Several witnesses were called, who spoke as to the rule of the trade regarding warning. Their depositions were to the effect that, after getting his first pay, a workman was entitled to receive from his master, and to give to him, a week's warning, in the event of either party being dissatisfied; but that before getting his first pay a workman could leave or be dismissed without that notice. The Sheriff held it proved that, up to the first pay, master and servant were upon mutual trial; and that if the employer thought the workman incompetent, or if the workman considered the employer severe or disagreeable, they could part company without warning. He found for the pursuer with expenses.

Manchester New Town-hall. — As we stated in last week's *Builder*, the tender of Messrs. George Smith & Co., of London, has been accepted by the building committee for the shell of the superstructure of the new town-hall, at 192,574*l*., the lowest of eight tenders. Though this contract does not include the upper portions of the two principal towers, nor the internal finishing of any portion of the building, some idea of the quantities of material and labour involved in it may be gathered from a few of the items gleaned from the calculations upon which the tenders were based. Among these calculations are 20 acres of brickwork, if reduced to 9 in. in thickness; 320,000 cubic feet of stone, on the surface of which is to be expended more than 27 acres of labour. There will be 3¾ miles of shafts in the building, either of stone or granite, and upwards of 3,000 carved caps to crown them. In the vaulting of the corridor, &c., there will be nearly 3 miles of groin ribs. The roofs will contain 2 acres of slating; of fireproof flooring there will be 4½ acres; and of iron beams about 2 miles in length.

The Penzance Serpentine Works.—On the 23rd ult. the lease, plant, and machinery of the extensive premises recently in the occupation of the Penzance Serpentine and Marble Company were submitted to auction by Mr. F. Inman Sharp, of London, by direction of the manager. The stock was sold in the first instance, and comprised some excellent specimens of serpentine, which realised full prices. The lease was next offered; the biddings commencing with Mr. Sims, on behalf of a London charity; but, not being equal to the reserved price, the lot was bought in at 800*l*. The plant and machinery were then sold, without reserve. The sale, says the *Cornish Telegraph*, created considerable excitement in the town, it being reported that a deaf and dumb institution thought of securing the works, which are situated on Newlyn Green, close to the margin of Penzance, in a commanding position, overlooking the Bay, and on the high road from Penzance to the Land's End.

A Self-Feeding Turning Lathe.—This invention, which has been recently patented for Mr. G. Sconcia, is about to be developed by a limited company. One skilled workman, it is said, can readily attend to three or four of them, while the work produced, according to our authority, the *Mining Journal*, is a marvel of perfection. Any desired pattern can be turned out by merely forming the profile upon a plate of soft iron, and plain rods, tapers, and the most complicated designs can be produced with equal facility, and without additional expense. The pattern is fixed around a wheel operated by the screw-worm in connexion with the feed-motion, so that variation when the pattern has to be repeated is practically impossible. Banister rails, billiard cues, table legs, chair rounds, and various other articles of everyday utility to the decorative carpenter, upholsterer, &c., can thus be made with surprising rapidity, and at a low price.

Theatrical Machinery.—The *Gazette des Architectes* (No. 17, 1869-1870), contains a full account, with illustrations, of the stage machinery proposed for the Paris new opera-house, by M. Quéruel, civil engineer. It includes several entirely new arrangements.

Archæological Excursion to the Herefordshire Beacon.—The Archæological Section of the Midland Institute have arranged for an excursion to the camps on the Herefordshire Beacon and Midsummer Hill, Malvern Hills, on Monday, the 12th instant. A Midland train will leave New-street Station at nine a.m., arriving at Malvern Wells about eleven a.m. Thence the members of the section will walk to the Beacon Camp, a distance of about three miles. Luncheon will be provided on the hill about one o'clock, after which Mr. H. H. Lines, of Worcester, will conduct the members of the section over the camps, and will read a paper describing them. Dinner will be provided at Malvern at six o'clock, and the members will return to Birmingham by the train leaving at eight p.m.

Artificial Butter.—The manufacture of artificial butter is (says the *Food Journal*) seriously contemplated in France. A Parisian contemporary states that M. Meye, of Paris, has taken out a patent for the manufacture of artificial butter, which, according to the journal in question, is to be used as a substitute for that ordinarily exported to England and Russia. The description of the process is, that animal fat is subjected to great pressure, by which the stearine is extracted for making candles; an oily material being at the same time obtained, the composition of which is identical with that of butter. M. Meye says that he subjects this animal oil to a succession of scientific processes and manipulations till he produces what he calls butter. He has the most sanguine anticipations about the success of his "invention."

The Tower Subway.—At the half-yearly general meeting of this company, the chairman, Mr. P. Barlow, in moving the adoption of the report, said he could confirm the statement in the report of the engineer as to the satisfactory condition of the works. The subway had been opened only two months, and the receipts amounted to 30*l.* a week. Arrangements had been made to diminish the working expenses without impairing the efficiency of the undertaking. They had made the necessary arrangements with respect to the safety apparatus, which had received the approval of the Government inspector. There was every reason to believe that the undertaking would pay the shareholders 15 per cent. The report was agreed to unanimously.

Two Hundred Thousand Wooden Legs. "We have from good authority a fact which will, in some slight degree, bring home to our readers the extent and the reality of the murderous work which has taken place in the east and north of France. It comes to us from a Prussian source, and is almost grotesque in its hideous suggestiveness:—two hundred thousand wooden legs have been ordered by the Prussian Government for the use of its soldiers!" So says the *Eastern Post*. In the war of 1866, the wholesale purchaser of these useful articles, King Wilhelm, shed tears at the spectacle of *one* man whose arms and legs were all gone, and who implored his sovereign to order some one to shoot him, for he had no means himself of ending his misery. Whether Bismark's *expressive* eyes were so suffused, sympathetically with his master's, we know not.

Petroleum in America.—The petroleum yield for July last was extraordinarily large, averaging over 15,000 barrels per day, being about 2,000 barrels more than the running average two months before. Three days only of this production suffices to furnish as much petroleum as the entire export of 1861 (1,500,000 gallons). Whereas more than 60,000,000 gallons have been shipped since Jan. 1, 1870. It is going to all countries abroad as usual, excepting to Germany and France. The abundant production, in face of European complications, has brought down the price to 22 cents.

London and Middlesex Archæological Society.—A general meeting of this society will be held at Monken Hadley, on Tuesday, the 13th, at half-past eleven o'clock, when papers will be read as follows:—"The Antient Topography of Barnet," by Mr. W. H. Black, F.S.A.; "Barnet and its Neighbourhood," by Mr. T. F. Pescock. The society will then proceed to Monken Hadley Church, where a paper will be read by the Rev. F. C. Cass; thence to South Mims Church, when Mr. E. Wright will give an account of the church and parish; and, after a collation, they will go to Chipping Barnet.

Science and Art School, Clerkenwell Green.—The prizes to the successful students at the Government examinations held in connexion with this school were distributed on Saturday evening last by Mr. C. Lamport, who presided on the occasion. Mr. Hodgson Pratt, who founded the school last winter, said that although the attendance had not been very encouraging, he thought it would be wrong to abandon the experiment until it had had a longer trial. He hoped that workmen and apprentices would join the classes, which would be re-opened so soon as a sufficient number of applications had been received. Addresses were made on the importance of technical instruction for all classes of the industrial community.

Strange Conduct of Workmen.—A deplorable fatality is reported from Middleton. A workman, named Dyson, employed at Messrs. M'Dougall's chemical works, entered a retort, for the purpose of cleaning it. He soon felt that he was being overcome by an accumulation of foul air; and, on his crying for assistance, a young man named Thomas Holland entered the retort, and with his aid Dyson was drawn out in an insensible state. The workmen in the place appear to have got confused, and, while directing all their energies to the restoration of Dyson, forgot that Holland was still in the retort. After Dyson had recovered, Holland was thought of; but by that time he had been killed by the fatal vapour.

Depression in the Slate Trade.—The slate districts of North Wales are now suffering from a great falling off in the demand, and consequent diminution of employment for labour. According to the *Investment Circular*, even at the Penrhyn Quarries, where for many years the demand has been greater than the power of supply, large numbers of the quarrymen have been discharged, and assistance given them by Lord Penrhyn to enable them to travel and seek employment elsewhere,—strong evidence that the depression is expected to be protracted.

Preservation of Stone.—At the recommendation of Professor Abel, chemist to the War Department, the process invented by Messrs. Gay & Co., of Alton, Hants, for waterproofing and preserving stone and other buildings, to which we referred some time ago, is, by order of the Office of Works, to be applied to a portion of the decayed stone-work at the Houses of Parliament.

Club Rebuilding and Redecoration.—The club-house of the Junior United Service Club, in Charles-street, St. James's, is now closed, preparatory to the partial rebuilding and entire redecoration and refurnishing of the interior. The cost of reconstruction and embellishment will be very large.

The Metropolitan Board of Works.—This Board will meet on Friday, the 23rd inst., when arrangements will be made for the election of a chairman in the place of Sir John Thwaites.

TENDERS.

For house at King's Norton, Birmingham, for Mr. C. E. Ryder. Mr. William Hale, architect. Quantities supplied:—

W. & J. Webb	£1,385	0	0
Partridge	1,320	0	0
Jones	1,313	0	0
Matthews	1,275	0	0
Moffatt	1,269	0	0
Blore	1,250	0	0
Ravenscroft	1,249	0	0
Surman	1,245	0	0

For alterations and additions at Dalston Junction, for the North London Railway Company:—

Axford	£7,810	0	0
Wittaker	7,590	0	0
Mansfield, Price, & Co.	7,283	0	0
Abrahams	6,987	0	0
Eston & Chapman	6,951	0	0
Hill, Keddell, & Waldram	6,874	0	0
Watts	6,674	0	0
Snowball	6,659	0	0
Parsons & Telling	6,435	0	0
Doverwood & Co.	6,369	0	0
Blease	5,995	0	0
Icks, Bangs, & Co.	5,970	0	0

For alterations and re-fitting at the Pitt's Head, Old-street. Messrs. G. Knight & Pickering, architects:—

Langmead & Way	£939	0	0
Elms	895	0	0
Stead	893	0	0

For the chancel and transepts only of the church for the new district of Newbarns, near Furness Abbey, for the Rev. Thos. Goss. Messrs. E. Habershon & Brock, architects:—

Court	£1,968	0	0
Ormandy	1,937	0	0
Gradwell	1,740	0	0
Garden	1,630	0	0

For the new Rectory House of St. Paul's, Carlisle, for the Rev. F. Richardson. Messrs. E. Habershon & Brock, architects:—

C. & J. Armstrong (accepted)	£1,650	0	0

For the erection of chapels at the New Cemetery, Romford, Essex. Mr. E. C. Allum, architect:—

Wood	£2,103	0	0
Chessum	2,100	0	0
Haynes	1,896	0	0
Blease	1,704	0	0
Potter (accepted)	1,694	0	0

For alterations and additions to Nos. 57, 59, & 60, Gedling-street, Dockhead, for Mr. G. J. Grace. Mr. F. N. Kemp, architect. Quantities supplied by Mr. Edwin J. Styles:—

Martell	£550	0	0
Kent	520	0	0
Dredge	480	15	0
Churchill (accepted)	397	0	0

For the erection of a house, at Caterham Junction, Surrey, for Mr. W. H. Heath. Mr. Ridge, architect. Quantities supplied:—

Cooper (accepted)	£691	0	0

For pulling down and re-building 137, Fenchurch-street, for Mr. C. J. Kim. Mr. F. Johnstone, architect. Quantities supplied by Mr. C. Kirkby:—

Newman & Mann	£3,285	0	0
Kilby	3,258	0	0
Conder	3,224	0	0
Axford	3,210	0	0
Hill, Keddell, & Waldram	3,197	0	0
Colls & Sons	3,181	0	0
King & Sons	3,126	0	0
Robinson (accepted)	2,984	0	0

For new shops and premises and alterations and additions, for Mr. James Wigan, at Mortlake. Mr. Pope, architect:—

Searle	£2,745	0	0
Little	2,706	0	0
Wigmore	2,587	10	0
Dove, Bros.	2,535	0	0
Avis	2,522	0	0
Brown & Robinson	2,478	0	0
Patrick & Son	2,461	0	0
Bishop	2,450	0	0
Adamson	2,430	0	0
Sharpington & Cole	2,391	0	0
Bowling	2,296	0	0

For Cottage Hospital, Seacombe, Cheshire. Mr. W. J. Mason, architect. Quantities by Mr. Geo. Northcroft:—

Ellis	£743	0	0
J. & T. Mason	725	0	0
Haigh & Co. (accepted)	725	0	0
Allen (too late)	713	0	0

Accepted for engineering works and gas-fittings, at Poplar and Stepney Sick Asylum, Bromley, Middlesex. Messrs. Arthur & C. Harston, architects:—

For steam engine and boilers and the fitting-up of the steam laundries, and for cooking apparatus, and fitting-up kitchen and scullery	Frazer & Sons
For cold water tanks and mains, fire mains, hot water warming, hot water supply, and for the supply and fitting-up of manual-power lifts	Jeakes & Co.
For gas-fitting work throughout	Fulton

TO CORRESPONDENTS.

J. R.—M. L.—W. P.—J. M.—A. & C. H.—Mrs. R.—S. F.—J. K.—P.—B. S.—C. B.—H. B.—P. J. T.—F. C.—Preston.—F. W. I. N.—A. C. M.—G. N. B. I.—R. P. W.—S. S. C.—J. L.—E. H.—A. H.—R. I. B.—C. C. H.—C. J. A.—W. J. M.—W. T. P.—C. B. A.—F. W. B.—H. A. (we shall be happy to receive paper on Steel).—Anxiety's (take a lawyer's advice).—E. T. (contrary to our custom).—J. T. (yes, the Royal Engineers).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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This Company prepares plans, specifications, &c. and reports on plans already prepared; supplies the funds necessary for the execution of the works, and if required, undertakes the execution of such works. The Company also undertakes to purchase lands for the reception of sewage.—Particulars obtained of Messrs. Bailey Denton, Esq., & North, Whitehall-place; or of Mr. HENRY DUDLEY COOPER, Secretary, No. 41, Parliament-street, S.W.

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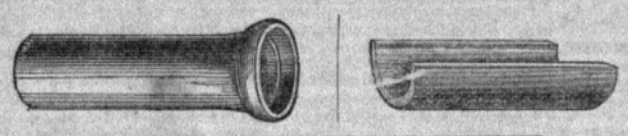

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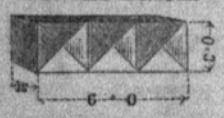

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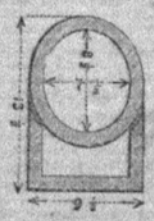

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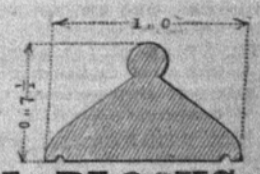

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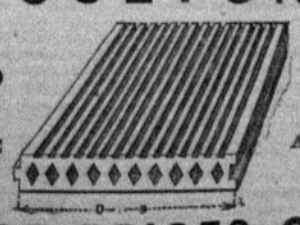

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VOL. XXVIII.—No. 1441.

Archæologists in Herefordshire.

SOME very good work was done last week at the Hereford Congress of the British Archæological Association. A continuous account of the proceedings would occupy a great deal more space than we can devote to the subject, unless it were a mere catalogue of places and papers, which would be very uninteresting. We must confine ourselves to dealing with some of the more prominent statements and buildings. It was an eventful time at which the meeting commenced. As one of the speakers said at the opening meeting, in the face of the momentous incidents narrated in the newspapers that day (the 5th), the armies of France destroyed, the Emperor a prisoner, and a republic proclaimed, it was somewhat difficult at first to bring the mind quietly and fixedly to contemplate such a purpose as theirs. But he thought it must lead them to feel thankful that they were in a position to meet in peace in that city, which, by the way, knew something of a siege 200 years ago. They must be thankful that they could meet there to examine its antiquities, works left by their forefathers, and to point out such beauties as they could see, exchange their little modicum of knowledge, and, as it seemed to him, by these means help to spread that love of country which gave the power when the time arrived to repel the foe who might invade it. After the address given by the president, Mr. Chandos Wren-Hoskyns, M.P., part of which was printed in our last, the city was perambulated under the good guidance of Mr. Flavell Edmunds and Mr. Kempson. At one opening in the walls, Mr. Edmunds reminded the party of the stratagem practised there in the civil war of the seventeenth century. The Governor of Hereford issued a mandate to the surrounding district to forward men to repair the fortifications of the castle, and the commander of the Parliamentary forces, Colonel Birch, knowing that fact, had sent a wagon up this road, apparently laden with hay, which, when it entered the Barton gate, was intentionally overturned, thus preventing the gate from being closed. As it was being overturned, the hay fell off, and a number of armed men sprang out of the cart, and cut down the guards at the gate. The victors then let in a larger force, which had been lying in ambush in the fields near, and the city was thus taken by surprisal. Would such a mild scheme succeed now? Still following the old wall to the bastion in Blue School-street, the solidity of this portion of the structure was pointed out, but it is neglected and falling into a bad state. Mr. Godwin expressed a hope that care would be taken by the town council of this interesting fragment of former times, and in such a way as to preserve without altering it. The expense would be trifling. Mr. Edmunds said he should be glad if that should be the effect of the visit of the Association to Hereford. It would be a great satisfaction to local antiquaries. The disfigurement of one of the best of the ancient houses in the market-place by huge notice-boards was strongly commented on. The party then proceeded to Coningsby's Hospital, where the coat of arms of the Coningsbys is seen over the entrance. The Coningsbys erected the present building out of the remains of the house originally belonging to the Knights Templars, but which on the dissolution of that order in the thirteenth century, was given to the Knights of St. John of Jerusalem. The arms are remarkable as an example of what is known as canting or punning heraldry. Having no idea of the true meaning of their name, the Coningsbys fancied that it had some reference to "conies," or rabbits. Hence their coat of arms represents on the one side the lattice-fence which kept the conies in their abode, and on the other side the conies enjoying themselves within it according to their fashion. The name of Coningsby has no connexion with conies, but obviously means "King's abode." The chapel of the hospital has a thirteenth-century triplet window, at the east end, and appears to be the earliest work remaining. The ruins of the Black Friars' Monastery behind are later. The open-air preaching cross is a rare example. It is hexagonal, with a pillar in the centre, supporting a groined roof, which is carried by six cinquefoil arches round the circumference. These arches originally were probably open, at any rate some of them. But the structure was restored a few years ago, and all the openings were filled up half way. At the same time it was surmounted with an ugly common cross, evidently without any authority.

As to the ruins generally, it was rightly urged that, if the masonry were pointed, it would be preserved and a good deal of expense hereafter spared. Mr. Kempson said that there was a charge upon the estate for the maintenance of the almsmen and of the building in which they lived, and these claims absorbed it, so that there was nothing for the maintenance of the ruins. Mr. Edmunds thought if the council of the Association passed a resolution, Mr. Arkwright would kindly complete the service which he had rendered to archæology by executing the small amount of reparation that had been suggested.

The Cathedral.

Mr. Gordon Hills, on Tuesday, first led his party round the exterior, and alluded to the circumstance that, although the Norman style of architecture predominated in the interior, there was very little of it visible exteriorly. The central tower is of the Decorated period, and profusely ornamented with the ball flower. There was up towards the end of the last century a western tower, which, however, fell in 1786. This was of precisely the same character as the existing tower. The Ladye Chapel has undergone great renovation of late years, the east end being almost rebuilt outside, though inside the old work has been preserved. Attention was directed to the beautiful cloister of the time of Edward IV., erected for the convenience of the vicars of the church. He then came to the chapter-house. A chapter-house stood there from a very early date; but the building, of which the ruins only now exist, was built in the fourteenth century, and is described in the Harleian MSS. as having the walls painted in panels, with subjects of the saints and martyrs. In one of these panels was represented a group of ecclesiastics with the inscription, "*Dominus Johannes Pratt*," and in the inside of the cathedral was a brass recording the death of the same Johannes Pratt, in 1415, who was a canon priest of the church. The chapter-house was decagonal, a rare form. It was approached by a side of the cloisters called the Lady Arbour, but he was at a loss for the origin of that name.

Mr. Godwin suggested that an apartment known as the "Lady's Bower" was common in old houses. It was not unlikely that this was called the "Bower of Our Lady." In illustration let us add that in early times the Bower was the name of the Ladies' Chamber. Chaucer and other poets use the term. In the old ballad "Lord Thomas" we have,—

> "Up then rose fair Annet's father,
> Twa hours or it wer day,
> And he is gane into the *bower*,
> Wherein fair Annet lay."

Mr. Hills next pointed out the architectural features of the great cloister, of which only two of the three sides are left standing. There was no necessity for the fourth side, or *scriptorium*, next to the church, which was used by the monks for writing in. If this had been a monastery there would have been a fourth side. He noticed that all the roofs were covered with lead, which was far more durable than slate, now so often substituted in restoration. Passing next into the garden of the Bishop's Palace, the party inspected the ivy-covered ruins of an ancient church in two stories or crofts, dedicated to St. Catherine and to St. Mary Magdalene. The other remains of the church were destroyed in the last century in order to improve the episcopal palace. Having thus completed the examination of the exterior, the party were conducted over the interior of the noble edifice. Assembled under the tower, Mr. Hills read a paper on the history of the cathedral. There could be no doubt, he said, that from a very early date the precincts in which they were assembled had been hallowed by the existence of a house of God. The first building was said to have been of wood, which was replaced A.D. 825 by a finer church of stone, and that again succumbed to another. Bishop Athelstan erected a new church, as they learnt from the chronicles of Simeon of Durham. He thought it was hardly probable that these churches were built in succession on exactly the same site; it was necessary to maintain one church while its successor was being erected. Bishop Athelstan died in 1055, and soon after his death the church was destroyed by an incursion of the Welsh; and they killed nine canons, who closed its doors against them, pillaged it, and removed all its relics. Yet after the death of this bishop there arose another and yet a finer church. Robert de Losing, who died in 1095, built a church planned after the great church of Aix-la-Chapelle, erected by Charlemagne. This church (Hereford) was said to have been consecrated in 1110, although at that time it could not have been entirely finished. Then succeeded Robert de Betune, who finished the Norman cathedral and completed the west tower. Robert de Betune, or Bethune, did more than is generally supposed. This is proved by a short biography of him written by his successor, one William of Wycumb, and printed by Wharton in the second volume of his "Anglia Sacra." When the west tower fell in 1786, the church was, in rebuilding, shortened by one bay. The tower is very different from what it was before the late Dean Merewether directed its repair. There had been great alarm at the condition of the tower, which it was feared would share the fate of the western tower. On examination, it was found that the ugly piers which had been put up in order to support the tower had settled away, and instead of supporting it, they with difficulty supported themselves, and they were removed. The skill with which the late Mr. Cottingham put in piers to carry the tower ought not to be forgotten.

In speaking of the lady chapel, Mr. Hills referred at some length to Bishop Cantilupe and his shrine, which formerly stood there instead of in the north transept, where it now stands. He explained that this shrine had been moved four

or five times. When the party reached the north transept, Mr. Hills said that that part of the cathedral was called after the name of Bishop Cantilupe. He thought that this was unfortunate. It was a belief shared in even by some eminent antiquaries that this transept was erected as a memorial of him. But this, he believed, was an error, as there were evidences that the transept was completed before Bishop Cantilupe's time, and in the time of Henry III., most probably by Bishop Aquablanca, whose tomb was partly in it. After speaking upon this question at some length, Mr. Hills again referred to the shrine of St. Cantilupe, which now stands in this transept. There are a number of armed figures about it, and he said he should like to hear what others had to say about the shrine. It had always been called the shrine of St. Cantilupe, but it seemed strange that armed figures should be put to ornament the shrine of a bishop. It was said that St. Cantilupe was provincial master of the Templars, and that this accounted for the armed figures, but he had never heard of a bishop holding that office.

To make these points clearer, we append, through the kindness of Mr. Murray,* a view of part of the beautiful north transept, a view of the remains of the shrine, and one in the nave. The latter shows Robert de Losing's work (1079 to 1095) and Wyatt's ugly clearstory and roof, poorly painted in Cottingham's time. We are disposed to agree in the opinion that the north transept is rather earlier than Cantilupe's time, who, by the way, held the see only seven years.

The Monuments

were described by the Rev. Charles Boutell, in a remarkably fluent address, treating first of monuments in general, and then of these in particular. The monuments in Hereford Cathedral were noticeable for variety and number, and also for certain peculiarities. They comprised—1. Sculptured effigies, with and without altar tombs and canopies. 2. Engraved brasses. 3. Incised slabs, and slabs sculptured in low relief. The first class included ecclesiastical effigies, of which the finest was that of Bishop Acquablanca, who died in 1268. This effigy retained much of its original colour, and was surmounted by an architectural canopy of unsurpassed beauty. Other episcopal effigies, some much injured, brought down the series till after the Reformation, including eleven effigies all executed at the same time—about 1320—to commemorate the early prelates of the see. They spoke for themselves. It was one of the attributes of the Mediæval period that wherever the chisel worked they could ascertain the time of the work being executed within five years—he might almost say within one year. He should be glad when we arrived in our own day at a style of our own and a treatment of our own. Of monumental brasses there were more remaining in Hereford than in any other cathedral. It was observable that from the larger churches the brasses had almost disappeared by the ravages of iconoclasts, or from other causes. Some tons of brasses had been removed, and since the restoration of the cathedral he could detect that some removals had taken place. He dwelt with force on the importance of conservative restoration being observed in the maintenance of our ancient buildings, and not restoration by demolition, and this not only in architecture, but in monuments. Happily in Hereford Cathedral the old effigies had not been cut down and made into new ones, as at Exeter, but they retained their old characteristics. Besides the ecclesiastical effigies there were others of a different character, but not so numerous. There was a fine alabaster effigy of Sir Richard de Pembridge, a knight founder of the Garter—the earliest with the Garter—who died in 1375. There were also numerous slabs, of which two were inlaid, not with brass, but with alabaster. Last, but most important and interesting, was the remarkable monument or shrine of Bishop Thomas de Cantilupe, in the north transept. He died in Italy in 1282, and, according to the custom in those days, it was thought necessary, in order to duly honour him, that his remains should be buried in more than one place. It was customary to erect as splendid a monument in the place where one part of the body rested as at the place where the other part was buried. It had four removes, and there was a fifth during the recent restoration at the cathedral. That was superintended by Mr. Scott himself, and had brought to light a remarkable circumstance,—viz., that the slab on which the monument rested was a highly ornamented slab, covered with a perfect cross. On that was built the lower story of the structure, corresponding with what they usually called the altar tomb. Then on the slab which covered the first story of the structure were traces of its having been inlaid with brass, showing enough of a mitre to be recognised. Further, it appeared from the marks on it that it might have been applied to cover the remains of another person. Above that slab was a beautiful arcade of arches supporting the uppermost slab, which still retained iron stanchions, showing that there must have been originally another structure above it. As far as he could learn, tradition had always identified this as the shrine of St. Cantilupe. The objection to that supposition arose from the fact of there being armed figures round it, but he did not see that that was any objection at all. He believed that similar armed figures were to be found on other monuments to bishops. Then the designs were certainly French, and not English, and generally their monumental tombs had designs of armed figures. It was said that the Bishop Cantilupe was "Provincial Grand Master of Templars." He had no authority for such an assertion. He did not know whether this bishop was one of those sainted warriors of whom they read, but he was rather inclined to think that he was not.

We would add that the figures seem to us to have reference to the Watching at the Sepulchre.

Amongst the subjects in the cathedral that led to discussion was the wide wooden chair preserved there, for which considerable age is claimed. Parts of it are unquestionably ancient, probably of the thirteenth century, but it has obviously been made up again in the seventeenth or eighteenth century: portions being made in bad imitation of the original. It is, nevertheless, a prizeable thing. The use of the doorway through the east buttress of the north porch was another matter for discussion. Mr. Hills lessened the difficulty by showing that there was anciently a chantry chapel close to this porch, and he thought the doorway might have been formed to give admission to it. This porch is ascribed to Bishop Hugh, his name and the date, A.D. 1519, are carved on the doorhead, but his work must have been confined to the outer part; the inner porch is obviously not later than quite the beginning of the fourteenth century. The date is in Arabic numerals, and is a very early example of their use *in stone*.

The well-known metal chancel screen, designed by Mr. G. G. Scott, and executed by Mr. Skidmore, is nothing short of magnificent; but we cannot avoid a strong conviction that it is overdone, and damages the sober beauty of the eastern end of the building. *Per se*, it is admirable, but it seems to us, though we say it with reserve, a little out of place.

But we must keep amongst the old things. A visit was paid to

Magna (Kenchester),

and to the ancient earthworks at *Credenhill*, Mr. Thomas Wright, M.A., Mr. W. H. Black, the Rev. Prebendary Scarth, and others, expounding. The latter gentleman, referring to excavations that had been usefully made on the site of other Roman stations, referred to those lately carried out at Maryport, which had led to the discovery of a number of Roman altars; from which further fact also he deduced the possibility of the existence of valuable relics beneath the soil at Magna, and the desirability of having, if possible, something in the shape of excavations made. We were apt to think, he said, that things had been wholly destroyed, but it was not so. We ought not to say that everything had been done that could be done; and he thought the finding of those altars at Maryport should encourage them to go on and investigate for themselves. Referring to the inscriptions which had been found in the course of the excavations at some of the places named, the speaker instanced that, among others, were some having reference to the *voluntari*. Thus, when we in this nineteenth century were raising our volunteers, we learned that the Romans had done precisely the same thing. The altars, too, seemed to have risen up to say, "You are no wiser than your forefathers," and so it was. We thought we had originated something, when lo! we unearthed evidence of its prevalence ages ago. They were, as yet, looking upon an unexplored site; his hope was that its exploration might be undertaken, and that the explorers would be rewarded for their pains.

Mr. E. Roberts, in reiterating this hope, mentioned that at St. Alban's last year excavations were, by a slight expenditure, made, which resulted in the obtaining of a perfect plan of the streets of the city. The outlay for this valuable discovery was, he believed, under 20*l.*; and if trenches were made wide apart in the same way here he had no doubt that an equally good plan might be obtained of Magna. It was exceedingly likely that the walls lay at a depth of not more than 2 ft. or 3 ft. from the surface. He hoped that the advent of the British Archæological Association might be the immediate precursor of such a further search as should enable them to make discoveries which should be interesting not only to local antiquaries and to residents in the neighbourhood, but to antiquaries and lovers in archæology in general.

This visit led to the exposition by Mr. Black, at the evening meeting, of a remarkable theory concerning

Ancient Boundaries and Roman Land Surveyors.

By this theory, Mr. Black traced the position of all Roman towns and remarkable points throughout the whole of the ancient world to certain laws of measurement observed by the ancients. There were, he said, certain officers called *agramensores*—literally measurers of fields—who constituted a college among the Romans, and were a body politic acting as magistrates. To them was deputed the fixing and determining questions of boundary. His theory was, that these *agramensores* drew imaginary lines directly from certain fixed points marked by artificial or natural mounds to certain other fixed points, and that by means of these lines the boundaries of kingdoms, of estates, of fields, and so on, were determined. These lines extended through the whole of Europe, and through the whole of the old world. The ancients, he maintained, had a perfect knowledge of longitude through these means; that before the determination of longitude by the difference of time, all maps were more or less wrong in longitude; that the ancients made no mistakes of this kind; and that their method was to cover the face of the earth with monuments having relation to each other. That art had been lost; but Mr. Black claimed to have recovered it. They must, he added, no longer talk about Druidical remains, nor ascribe to fairies and "the foul fiend" the existence of mounds and stones which were due to other causes. There were, he said, millions of observations marked in the ancient world. He had himself examined the surveys which had been made in 1831, 1834, and 1837 for the Municipal and Parliamentary Boundary Commissioners, and he could state they showed proofs to this day of the amazing accuracy of the ancients. Referring to the boundaries of parishes, manors, &c., he submitted that the traditions which existed as to those boundaries were a proof of the continuity of race, otherwise those boundaries would not have been kept up as they were in the time of the Romans. There had scarcely been any change except under some stupid Act of Parliament, or under some regulation made by people who did not know what they were doing. Where none of those things had occurred, the boundaries were just the same now as they were laid out by the Romans. Enlarging upon this subject, he referred to the boundaries of certain London parishes, and held that they were as clearly to be determined as any proposition in Euclid; and how, he asked, was that to be accounted for except by the theory of a continuity of race. Then he contrasted this state of things with that which exists on the Continent, where civil institutions have been abolished, and where—particularly in France—the old boundaries have been deleted to give way to the new-fangled departments. As an instance in support of his argument, he mentioned the fact that a question had arisen as to the boundary of some land connected with Greenwich Hospital, in reference to which he had ascertained that the verdict given by a jury was supported by ancient tradition, and was in accord with his own measurements by the Roman system. Under the Roman system, he maintained there never was a camp, or wall, or military line laid out except under the advice, direction, and authority of imperially-appointed and legally recognised men; and all this work had been done upon geometrical principles.

* From his very useful "Handbook of the Cathedrals of England. Western Division." See p. 745.

Why was it that there were such apparently strange boundaries of countries and parishes? They must look upon Credenhill as an earth-work, as a place where men of science and extreme skill took up their abode, and, as they saw the distant mountains, peaks, and points, not only of this, but the surrounding counties, from thence took their angles and made their observations. Mr. Black went on for some time to argue that all the works of the Romans are clearly demonstrable upon principles of geometry, principles which were known not only to the Greeks and Romans, but to the ancient races of India. The better we knew geometry, the better we should understand the works of those marvellous men of science, whose functions, duties, and proceedings had been involved in remote obscurity. In the course of his address, Mr. Black also touched upon the subject of barrows, his argument being that many of them must be regarded as boundary marks and places only of accidental sepulture.

The theory is so extraordinary and comprehensive that few will be willing to admit the correctness of it without very conclusive proofs; but as we happen to know that it is the result of many years' study, and the examination of many hundreds of places, neither should it be hastily put on one side. A volume on the subject which is being prepared for the Government will soon explain the matter further.

The first outing took place on Wednesday, and included Kilpeck Church, Abbey Dore, Rowlstone Church, and Grosmont Church and Castle.

Kilpeck Church

is one of a well-known group of Norman churches in this county remarkable for the peculiarity of their sculptured ornament. It was described by Mr. Thomas Blashill, and, as many of his observations refer to the group generally, we give them nearly in full. He said that about the year 1134 the benefice was given by Hugh, the son of William Fitz Norman, lord of Kilpeck Castle, to the Abbey of St. Peter, at Gloucester, and it has been assumed that the church which we see here was then already built. However this may be, it clearly belongs to that great church-building period, the first half of the twelfth century. The sculptures have been the subject of much ingenious speculation, to which I need not further refer, as their origin is pretty clearly written on the face of the building itself, and to that I shall have to invite your attention. It is impossible, however, to speak of Kilpeck without some reference to the old church of Shobdon, in this county, in which everything that is peculiar here was much more strongly developed. Shobdon was built about 1141—that is, nine years after the date given for Kilpeck; and they were clearly executed under the same influence, if not by the same hand. Oliver de Merlemond, who built and endowed Shobdon, is said to have made a pilgrimage, while it was building, to the then famous shrine of St. James, at Compostella, in Spain, and as his journey would lie through the best districts of France, it has been conjectured that this may have influenced the design of the building. It is certain, however, that it could only have influenced those parts of the general design which are in accordance with ordinary twelfth-century architecture, and not the peculiarities which I shall have to point out. Observe, first, that the plan and general arrangement of this fabric, and the position of doors, windows, and other leading details, are of a type which was quite common in the twelfth century. I exhibit for comparison sketches of buildings so far apart as East Ham, in the Essex marshes, and Dalmeny, in Linlithgowshire, together with that of Moccas, in this country. The flat pilasters on the walls,—which are first attempts at buttresses,—and the corbel table which runs round the building, are features common not only to the three kingdoms, but to the whole of Western Europe at the same period. To go one step further. The general design of the columns, in which human figures, monsters, and birds are mixed up with foliage and knot-work, was common all over Europe in the twelfth century. I exhibit sketches from the Cathedral of Chartres, of about 1135, and a very remarkable column at the Church of St. James, at Compostella, executed in 1116, five-and-twenty years before the pilgrimage of Oliver de Merlemond. There was, therefore, nothing in the idea that might not have been gathered from that or scores of other churches then erected. But when we turn to the sculptured ornament we find a very curious phenomenon. For while the twelfth-century sculptors generally in England adopted eagerly that mixture of Romanesque and Byzantine ornament which was introduced from Normandy, developing it in a fashion of their own, the man who did this work evidently set himself to adapt the ancient style which was then dying out in these islands of the West. And although we see frequent instances in which that style peeps out in the Late Norman work, yet this was the only part of the country in which any determined effort was made to work in that old manner which was doomed to disappear before the great artistic revival then taking place in Western Europe. Both Kilpeck and Shobdon lie outside the ancient boundary of England as defined by Offa's dyke. They were anciently in the diocese of Llandaff, and thus would be much under the influence of the old Welsh and Irish traditions. Now there had flourished in Ireland for several centuries a style of ornament applied to works of a religious character, and distinguished by the great use of fabulous monsters, mixed up with lines or stems curiously reticulated and intertwined. We see many small remains of it in the sculptured crosses of Ireland, Wales, the Isle of Man, and the North and West of England. But it became somewhat plentifully spread over Europe in the splendid manuscripts in the production of which Ireland then excelled all the world. That style of ornament, which was then dying out, was seized by the carvers of Kilpeck and Shobdon, and applied to the purposes of decoration of those otherwise Norman buildings. In the south doorway the general designs are consistent with ordinary English work of the twelfth century. We have the Norman zig-zag and star-shape sinkings. The curious little spur on the base is exactly like one which is used at St. Peter's Church, Northampton. The outer ornament of the arch is what we call the medallion ornament, joined by grotesque masks, as used in the font at Stottesdon, in Shropshire. Some of the medalions contain birds just like those of the twelfth century font at Winchester Cathedral. The tympan is filled with a carving representing the vine. The rim of heads and grotesque figures which surrounds it is consistent with that common decoration called the cat's head ornament, though most of the figures used in it are quite of Byzantine and even Celtic character. The work here generally is done as if by a man who had never been accustomed to carving in stone, but had studied the old Irish manuscripts, beastiaries, or old books of natural history, or perhaps the carvings in ivory and works in metal which were then spread over all Europe from Constantinople. Then there are one or two signs of the zodiac, and monstrous animals or heads. The figures on the columns are said to be in Anglo-Saxon costume. An ordinary carver would have put them in Norman armour, or in the more graceful shape then being used at Chartres Cathedral. On the corbel table round the building we find such subjects as the lamb, the zodiacal signs, bits of Celtic knot-work, and close to the grotesque heads at the western end is a piece of Byzantine ornament exactly similar to some which exists at Shobdon, and also in the south doorway of Rowlston. The grotesque heads projecting at the west end are probably the only similar instances in Britain. They appear to be reminiscences of a kind of timber building where the wall-plates were continued beyond the walls and carved into various shapes. However that may be, the prevalence of such grotesque forms is highly characteristic of the Celtic school of ornament. There were, indeed, afterwards adapted and largely introduced in all the succeeding periods of Gothic art, the belief in dragons being quite common down even to the seventeenth century. The learned classified them in species as confidently as a zoologist would now classify a particular genus of animals. The ornament in the west window is almost purely Celtic, and may be compared with that in the Irish crosses and carved stones. The columns at the sides are of the same size as the roll which is above them. This is quite an Irish feature, and betrays a want of knowledge of the relation which a column with its capital bears to the arch which it carries. A Norman architect would have made the column smaller and the arch more square in section with a small roll moulding or zigzag ornament on the edge. The bell cot is modern, and there is no record of the original termination of the western gable. In the interior of the church we have a very fine chancel arch of Norman character, but having figures carved in the place of the side columns. These carry various attributes, as the key for St. Peter, &c. The apse is vaulted with ribs ornamented with the zigzag, and with a boss composed of grotesque heads, very similar altogether to the work at Elkstone, in Gloucestershire, which we visited at our Cirencester meeting in 1868. The pilasters are a curious modification of ordinary twelfth-century work. I know of nothing exactly like them. The font is one of those large ones of which there are several remaining in this county, as at Bredwardine. I have said that the sculpture here looks like the work of a man but ill accustomed to carving in stone, and ill acquainted with the new style then practised in the rest of Europe. But the work at Shobdon is excellent in all respects, and the design was evidently due to one skilled in the newest development of the Norman style. This, to my mind, shows that their peculiarities are not due to their greater age than other churches of similar plans and arrangements, but to a deliberate intention on the part of the designer to try the effect of the old kind of ornament instead of adopting the new.

Mr. Blashill, who is a rapid and accurate sketcher, made his paper here and at Rowlstone Church, which he afterwards described, particularly interesting by exhibiting a number of drawings of similar buildings and parts elsewhere.

Mr. Black contended that Kilpeck Church was earlier than the date named. The "Book of Llandaff" stated that it was consecrated about the year 1100. He also maintained that it ought not to be ascribed to the Normans, but to the British. This led to an interesting discussion, of which we would gladly give particulars if space served.

Abbeydore,

a most charming example of Early English emerging from Norman, was described with considerable fulness by Mr. Gordon Hills. A very interesting matter turned up here in the shape of a miniature slab bearing the incised figure of a man, and a small inscription on each side. The figure is that of a bishop, and the stone itself is about 15 in. long by 9½ in. at the top, tapering to 9 in. at the foot of the figure. The inscription is much defaced towards its commencement on both sides, the first word being entirely defaced. As it stands it reads thus:—

A : PONTIFICIS : COI
XPSTE : JOHA

After some little pains the original was thus restored:—

SERVA : PONTIFICIS : COR :
SANCTVM : XPSTE : JOHANNES,

or, "O Christ, preserve the holy heart of Pontiff John."

We need scarcely speak of the value of this stone, and the pleasure the successful reading of the inscription gave, serving as it does to confirm the opinion often expressed in these pages as to the connexion between miniature effigies and heart-burial in other places. The stone, at present loose, should be affixed to a wall, and carefully preserved.

In the north transept was also pointed out a sepulchral stone in the floor, purporting to mark the last resting-place of "Elizabeth, daughter of Thomas Semis, who died at the age of 141." On careful examination, it was found, as might have been expected, that the figure 1 before 41 had been introduced afterwards.

At Grosmont Church, Mr. Seddon, who is conducting a partial restoration there, joined the party, as did the Earl of Mar. The Rev. Mr. Twyning, the rector, and Mrs. Twyning, had kindly provided unexpected refreshment, but "Time and the hour" permitted only very partial enjoyment of it.

On Thursday the members went to Leominster Church, where, we understand, they found in the great west door and window over it carvings evidently by the same hand (if there be any dependence to be placed in *manner*) and of the same pattern as those on the doorway at Rowlston; like also to those parts of the Kilpeck carvings which are most English in appearance. Now, this west doorway has a *pointed arch* externally, with round arch internally, and round arches in the rest of the work, thus strengthening the opinion of those who date Kilpeck late in the Norman period. Monkland, Stretford, Dilwyn, and other churches were also visited and described, Sir Henry Baker, bart., and the Rev. Dr. Heather assisting.

Thursday was devoted to one single object,—

Lanthony.

The distance and difficulty of the journey, as well as the interest attaching to the Priory, pre-

cluding any enlargement of the programme for that day. A number of the excursionists gathered for this journey, and nearly seventy met at the Priory. The showers which fell occasionally were not sufficient to deter any from going who had put down their names, and the occurrence of a fall just when luncheon was over caused an improvement of the occasion, Mr. E. Roberts giving an amusing account of his pedestrian journey over the mountains the previous evening, and Mr. Gordon Hills a succinct history of the several monastic orders.

The description of the Priory was undertaken by Mr. Roberts, and he commenced by comparing its foundation with that of Finchale, near Durham, from his own paper on it, from which he read extracts to show that it would apply word for word to Lanthony. Both were originated by hermits who wore only mail and sackcloth; both churches were dedicated to St. John the Baptist and the Virgin Mary; both were out of the ordinary tracks, and very difficult of access. The churches and monastic buildings also were nearly identical in plan, the varying slopes of the sites causing slight variations. In one respect only was there doubt, namely, in the position of the prior's lodging; no foundations had been sought, but he ventured to predict that if they were they would be found in a place similar to that at Finchale, where no one had suggested it, namely, to the east of the chapter-house. Having referred briefly to the hermitage of "William," one of Hugh de Lacy's retainers, in 1103, and to the subsequent accession of Ernesius, he stated that every writer whose works he had seen had followed the same statement, taken from a history by a monk (translated by Atkins in the "History of Gloucester") and Giraldus Cambrensis (who wrote his "Itinerary" in 1188), namely, that this priory was finished in 1115, prior to the removal to *Lanthonia secunda*, near Gloucester, in 1136, which took place in consequence of the extreme disquiet that the monastery suffered by reason of the unruly inhabitants of the district, and the consequent warfare, insults, and plunderings. Giraldus gives sufficiently distinct descriptions to induce us to think that the church and buildings were really completed. It seemed as if none who had described these recently had the slightest idea of discrediting Giraldus; but, inasmuch as not one single stone of any part was cut before 1190, he had to come to the conclusion either that Giraldus must have written his Itinerary much later than is supposed, or that there were previous buildings which had made way for those now existing.

The whole of the church, and the greater part of the other buildings, are of one period, the chapter-house and two buildings adjoining alone being twenty years later. Mr. Roberts said that he, of course, expected to see a purely Norman monastery, which would be extremely interesting, but what was his astonishment to find it purely Early English in every part, with just so much of the Norman feeling about the earlier portions as to impart a tone of simplicity and severity.

So far as his researches went, the novelties he had to name were a discovery of a prior, John Adams, who had not been given in the list; a north chapel to the choir, corresponding with that on the south side, generally called the Lady Chapel; the more certain nomenclature of the various portions which had erroneously been appropriated, namely, a treasury or sacristy next the south transept; the day-room next the chapter-house; and the refectory on the south of the cloister. The present inn is not the site of the prior's lodging, but was the dormitory with storage beneath; a considerable part of this cellarage remains, and indicates a period certainly more than half a century after the supposed completion of the monastery. The dormitories on the east of the cloister did not extend over the chapter-house and sacristy, but ended with the day-room, next to which was the stair. There was no stair from this dormitory into the church. The cloister was of wood. The gateway and hospitium were at a distance westward, with the entrance from the south. It was in the space between this and the church that the rabble, mentioned by the monk of Lanthony, broke in while pursuing a neighbour: thus his description decides the site of the hospitium.

Mr. Roberts had found that there were two benefactors of the same name, one being a nephew of the other, and who died in 1185, fifty years after the first; and he suggested that a mistake had been always made by previous writers in their identity; the second, by his benefactions having provided the means to build the monastery. The first Hugh de Lacy had founded the original monastery, of which the adjoining church probably was part. This had been called a parish church, but there is no parish of Lanthony, the monastery being in Cwmyoy parish. The church which remains is certainly earlier than the monastic church, but is still not early enough for the date of 1115; it is in the monastic enclosure, and is, very curiously, within 8 ft. of a building southward, which must have been either an infirmary or workshops. The mill-race remains, lower down, and a modern mill on the site of the old one.

A substantial luncheon, sent from the Scudamore Arms, was served in the dormitory, part of the modern inn, and the company returned by the coaches up the beautiful valley surrounded by the Black Mountains to Llanvihangel, and thence by rail to Hereford, thoroughly pleased with the day's excursion.

The President's Breakfast, at his residence, Harewood House, on Saturday, was numerously attended, and the reception by himself and Mrs. Hoskyns as kind and genial as could be wished.

We have omitted mention of the evening at the Palace, where the Bishop and Mrs. Atlay entertained the Association, and must make an opportunity to return to it, and to refer to some of the papers which were read then and at other of the evening meetings not yet mentioned.

HANDRAILING.

SCIENCE AND WORKMANSHIP.*

THE subject of the following notice suggests a variety of matters for important discussion, in the interest of architecture, the architect, the builder, and the artizan. As most of these matters are germane, and highly illustrative of the character, customs, and practice of our workmen, in the past as well as the present, we will, as the time is not inopportune, touch upon some of them. In the history of modern building, in its various branches, the progress of constructive carpentry and joinery calls for particular consideration. The workman's position and his work, and the methods by which he has been in the habit of performing it, are an interesting and instructive study. Its examination during our own time, and in our country, exhibits a phase of society and an existence of ways and means which one would have thought to be scarcely compatible with the pursuit of architecture, and the high and acknowledged status of its professors. But the explanation is at hand, the absence and want of facilities for the education of the workman in years past, have been fatal to him, not only as a mere member of society, but as a skilful workman. The architect might possess all the education and enlightenment the practice of his profession required; but that, after all, was of but small moment for the artificer. Where the schoolmaster's work was left undone, the future mechanic had nothing to hope or build upon but self-culture and experience. If the proper stamina were in him, he partially, or perhaps in rare instances wholly, succeeded in conquering immense difficulties. By constant application in the practice of his calling, he technically educated himself, assisted by the experience of older hands, and by a study of the best methods that came under his knowledge. The young workman of the past strove to better his fortune and improve his skill by travel, and in his honest quest visited other places in the kingdom, for the double purpose of improvement and employment. By these means many of our workmen of the past became skilled, and more capable of undertaking and accomplishing work, and of drawing upon their own resources when a difficult job presented itself. These experiments furnished them with examples to apply in new or similar situations, and if they were not always correct in execution, they were at all events in possession of the most practical method in use, or known at the time among their fellow-workmen. Thus stood matters, more or less, within man's memory, in the building profession. The few who were partially educated were the better workmen, if personal vices did not interfere; and the unlettered were inferior, save where their large experience and a happy natural talent and quickness of perception stood them in stead. Good, solid, well-framed, and well-finished work is to be found in many of our old mansions and noblemen's dwellings: elaborate and excellent in design, and with a good facial finish. In our old churches the open-timbered roofs are miracles of construction in design and masterly workmanship, and in many of our old city residences and country seats, there are windows and door finishings, stairs and wainscotings, worthy of every admiration and praise, viewed in the light of the past. In one branch of the building trade, however, our praise must be qualified. The timber staircase and its adjuncts was always, even under the best circumstances, a heavy, overloaded, and badly-constructed piece of workmanship. Faulty plans were compensated for by massiveness in size, elaborate detail, and superfluity of ornament. As years grew and modes of living changed, economy of time, space, and expense became matters of vital interest in construction; hence practical methods, as well as ready ones, became a necessity with builders and workmen alike. Here, then, we have the uprise of modern modes and methods which have worked so many and vast changes in the art of building. The construction of staircases as now built compared with what they were fifty years since, is as dissimilar as can well be imagined. That part of the branch called Hand-railing is entirely and almost completely revolutionised. A succession of newel posts is superseded at their points by the continued handrail, and what was once abrupt, heavy, and cumbersome to the sight and feeling, is now easy and flowing. This change has not been affected without considerable delay, disappointment, and failure in the progress of the science. The workman has suffered, as well as the builder, and the client or owner has, to his sore grief, been left at times a legacy of maimed construction, which was an eyesore to him through life, and which he had good reason to remember to his dying day. Towards the close of the last century improvement in the modern method of planing, constructing, and putting up staircases, and arranging the handrails on a more scientific system, began to show itself. In the works on carpentry by Pain and Price, there was little or no improvement in staircases or handrails advanced. In the publication of the late Mr. Peter Nicholson, the first edition of which appeared at the end of the last century, the first practical attempts were put forward, and the then existing forms of staircases and handrails were laid down with accuracy; and methods with plans were given for their more correct working. The subsequent and several editions of Nicholson's works, since edited and improved by himself and others, have further advanced the subject, and placed the science on a more practical and certain footing for the manipulation of our workmen. To the ordinary class of mechanics, with which our workshops were filled some forty years ago or less, the methods laid down by Nicholson, though scientifically right in most ways, were at the same time complex and bewildering from the number of "lines" introduced. Geometry was applied to construction correctly, but handrailing instead of being simplified for the service of the workman, became to him a bugbear, to be afraid of, and to be avoided. Consequently the progress of the science among our artizans was slow, and the quick and initiated reaped the harvest, and grew intolerant in their assumptions and demands.

We might relate many amusing traits of character connected with the career of staircase hands; traits, indeed, absurdly amusing, as well as reprehensible. The proficient staircase workmen some years ago were as intolerant in our buildings as were the poor hand-sawyers before steam-power was applied to cutting timber. To be possessed of the knowledge of "laying down the lines" for the stairs, particularly the handrail, was considered the very acme of skilful joinery; and the workman who prided himself in the knowledge was the pet of the workshop. It was generally taken for granted, that no matter what way the ranks were thinned, the staircase-man was sure to be the last that was discharged.

Such a state of things as this, where there existed a paucity of skilled labour, even in one single branch of building, was sure to beget evils,—and evils, and lasting ones, it did beget for a time. We have known the little-mindedness of men in this part of the trade to be such that they would not work beside the "vulgar herd" of their fellow workmen. They would be provided by the foreman or

* The New Elements of Handrailing. By Robert Riddell. Philadelphia: Claxton, Remsen, & Haffelfinger. London: Trübner & Co., Paternoster-row.

employer with a bench for their own exclusive use. We have known some of these exclusive fellows descend to some very low tricks. Sooner than let a fellow workman benefit who might be working near them, they would draw a number of useless intersections of lines across the drawing-boards, and sometimes across their moulds, so that in their absence no one of their brother workmen could make head or tail of the drawing. The staircase-hand of the old school had many privileges and exacted much, but his place has passed away. The science is not confined to a few, and, with the aid of early primary and technical education, in a few years this branch of the building craft will be thoroughly understood and practised.

If plans of staircases were properly studied and laid down, we should not have such a number of ill-formed abortions. The hand-railing of a stair is more or less a failure when the plan is bad, but, even over a bad plan, a graceful and well-finished handrail may be made to range, presupposing the handrail workman knows his business. Sufficient attention is not given, even by some architects who ought to know better, to the placing and planning of the stairs. As for builders who design and build for themselves, or clients who employ and direct builders in what they require done,—under these circumstances the stair has fallen into bad hands or stands in terrible danger. It is even thought by some of these people, that any space (and som times even place) in the building will do to put the stairs in. People are in the habit of talking as loosely and as cavalierly of the matter as if the stairs could be stowed away as easily as the broom or some other similar household article, "out of the way." It is little wonder, indeed, that many of the stairs in our dwellings are such wretched and creaking affairs. Squeezed into small places, two flights are often found where there is scarcely room for one; and it would be a libel upon the name to call either the handrail or well-hole what they are supposed to be, but are not. The stairs should not be accommodated to the building, but the building should be accommodated to the stairs; in other words, a proper plan, where height, breadth, easy approach, easy ascent, and a proper provision for light, should be primarily considered. Given, sufficient room and sufficient light, nothing short of a perfect staircase ought to be the result; and this is no longer only possible, but positively certain, in the hands of skilful workmen.

We now come to the workman, his work, and the workmanlike manner of accomplishment. The publication under notice is entitled, "The New Elements of Handrailing," and it furnishes plans and methods designed to meet various situations. The work is an American one, and is entitled to a careful consideration at our hands,—the interest of the workman and the employer, comprising the general interest everywhere. We have spoken of it before, but this is a new edition.

The author submits that he has, in handrailing, to use his own words, "carried the system of practice to a more comprehensive, yet condensed point, than others have yet obtained."

The great object of the writer, as we learn from himself, is to introduce shorter and simpler methods of working, to save time and material, and to place the applications of the science in the power of every workman. Let us say honestly, that Mr. Riddell is partly successful. He has improved upon the works of Nicholson and his followers in this country; but we must dispute some of his claims, nevertheless. The work contains forty plates, comprising plans, and the method of getting out and applying the moulds in every case. Amongst the number treated are circular, elliptical, and platform stairs; stairs with quarter circles and winders; straight stairs, with cylinders at landings; stairs with three or several winders; and the method of laying down the moulds for each, and of forming their different wreaths, ramps, side-wreaths, and joints. The first three plates comprise nearly the whole of the elementary lessons, afterwards elaborated upon by the author in detail.

The author gives clear and concise instructions, and particularly in connexion with the first plates, his illustrations are homely, as well as correct, and cannot fail to be understood with a little attention on the part of the young workman.

The first lessons in hand-railing are practically demonstrated in cutting a cylinder obliquely. te section, as every carpenter or joiner or mason knows, is an oval or ellipse. As every point of the rail must stand over its plan, to be correct, the importance of a proper idea and understanding of the ordinates and tangents belonging cannot be overvalued. Staircase hands were formerly in the habit of doing what is called "springing the plank," throwing its edges up or down in getting out the twist or wreaths. This was quite unnecessary; and, as our author remarks, and all practical staircase hands must agree with him, "no matter what pitch or inclination a wreath may have, its minor axis, wherever situated, remains level." The ordinate alone changes both axes in their position on the surface of the plank. The edge of the plank, in every given pitch or rake, should give a perfect plumb line; and this it will do, when the minor axis is a dead level. These are essentials in hand-railing.

In the treatise under notice some capital instructions are given in different forms of stairs on fixing the position of risers. In platform stairs it has often been noticed, when the cylinder was a large one, that the rail and the string have an ugly and crippled look. This is not so noticeable in stairs with a small cylinder. The position of the riser being placed upon the spring line causing these defects, a better mode is shown by our author for fixing the position of the riser at the cylinder and getting-out moulds, for working the wreath of the handrail for the same. Similar methods are shown farther on in the work for meeting similar defects in string and hand-rail, in stairs where there are winders, and the cylinder is small.

Before proceeding further, we must take issue with the author on the subject of Kerfing. He claims to be the first who introduced the system, and he descants rather glowingly on its advantages and merits. Kerfing, as applied to the bending of the strings of circular or elliptical stairs, both inside and outside, is nowise a new invention or introduction. The system of kerfing has been long practised, with more or less success, in Great Britain. The author points out its advantages for other forms of work, such as the bending of mouldings, soffits, framings, &c., but we must remind him that to each of these things it has been long applied. To the circular heads of door frames and sash frames and other curvilinear work in carpentry and joinery, the method of kerfing, for bending to required forms, is no new practice, but a rather old one. We agree with the author that it may be successfully applied in many descriptions of work, where time and economy of material is a consideration. Much time and labour are without doubt spent, or were spent formerly, in building up forms, cylinders, cradles, and drums, for bending and testing purposes. The time expended was not, however, wholly spent in vain. The system produced mostly solid and regular work. In many descriptions of curvilinear joinery it is still indispensable to use forms and cylinders, and we do not see as yet how it can be wholly avoided, no matter what amount of time it may take. The practised workman must use his own judgment, and will need the concurrence of his employer very often in adapting new methods to the execution of difficult or hurried jobs in hand. The system of kerfing is not an American invention, but a British practice, and the idea had not its growth in the head of our author; it was practised years before he was born; he, however, improves upon it. In common class, and painted work, it will serve its ends for the strings of stairs, without any other finish than from the saw and plane; but where neatness of finish is required in hard wood, and even in deal or pine, a veneer is necessary.

Passing from the subject of kerfing to the subject of forming the moulds for the wreaths of the handrail, and their application, we must commend the instruction given, and award praise where praise is due. If the learner or workman proceed according to the practical methods laid down by Mr. Riddell in his book, proper stairs and handrails, ranging accurately over their plans, will be the result. This is a desideratum; for one-half or more of the handrails put up at present are in winding, or do not range, and no amount of dragging, or bracing, or contriving will cure the evil when they are wrongly constructed. The construction of the scroll and curtail step is passed over in this work, the author merely remarking that it was formerly the custom to have them, but that now they are superseded by the adoption of panelled octagon ornamented newels, with a side curve. This is not exactly the case. Though the newel system, plain-turned and octagon-panelled, is in use, the scroll and the curtail step system is still extensively practised. Some give it the preference. We consider, where the economy of a few inches of space is no consideration, that the scroll and curtail step gives a graceful and artistic finish. Before the scroll and curtail are superseded, it will be some time, we think. Both are capable of much improvement. The string, instead of sinking abruptly to rest behind the first riser, should get a curvilinear sweep beyond it, forming a falling and diminishing curtail independent of the first step, the scroll following the same example. Thus the curtail could be made a more graceful copy of the scroll above it.

Mr. Riddell is certainly an innovator, and his methods of demonstration are as fixed and unalterable as the rules of the science he inculcates. He does not trouble his readers or workmen about a series of face, or outside and inside falling moulds. He lays down his plans and elevations, draws his ordinates and tangents, marks their place on his mould, applies it to the plank, squares and works off from centres the surplus stuff. Thus are his wreaths and curves formed, and his system of handrailing made easy. There is no need in these days of advanced and practical methods to grope the way in handrailing. If workmen are but intelligent, and have the advantages of a little education, most of them, with such instruction as Mr. Riddell's book affords, may master the situation, and become good staircase and general hands. They must, however, lay their minds down intently in their work, for skill will not come without hard toil, and a love for their trade. In these days of technical instruction, and the many facilities for its acquirement, the future artizan stands a good chance for worldly advancement. On parents and on the State devolves a duty, and we trust, for the interest of society at large, that this duty will be kindly but rigidly performed. If so, a time may arrive when bad workmen will form the minority, and not the majority, and when a shame will attach to bad workmanship, instead of being winked at and passed over.

Before leaving the subject of our notice, we may mention two or three matters more connected with the practice of staircase and handrailing, evidencing, as it does, much change in the progress of constructive carpentry and joinery. Stairs were formerly built step by step upon their carriage-pieces, the workman applying his story-rod and level as each step or thread was put in its place. Now stairs are mostly put together in flights at the bench, brought to the building, and fixed. The handrails are also prepared at the bench, and a correct workman might even dispense with the practice of "horsing," and cut every division to its exact length, and make every joint perfect. This is not done, however. The workman's methods in handrailing were too uncertain heretofore for him to trust to himself in matters of nicety; therefore a surplus length was left upon the straight rail until the staircase was put up in the building. It was the practice formerly to cap handrails with mahogany, the under portion being deal or some other wood. The grain of the mahogany or oak was placed crosswise. This system is disappearing: handrails in all dwelling-houses or public buildings with any pretentions to respectability should be solid. The continued handrail is now, and has been for some years, the fashion. Of course there are a variety of forms of staircases. Some with closed and open strings, stairs of straight flights with cylinders, stairs winding round a newel the whole height of the building, circular, elliptical, dog-legged, and composite. Some of the oldest forms of these are still in use, and are adopted to suit various emergencies of taste, situation, or pocket. Stone stairs, which are common to large buildings or public offices in England, are common to most houses in Scotland. The system of flats in the latter country renders the staircase isolated, as it were, and the common property of a number of owners or tenants. Stone stairs with ornamental and traceried iron balusters, and a solid mahogany or oaken polished handrail, when well executed, are a pleasing piece of workmanship. Methods are given in Mr. Riddell's book which will meet almost every variety of handrail, whether intended in connexion with stone or iron. In the case of the construction of a side rail, projecting from a circular wall and resting on iron brackets, a very good method is given for making and fixing the handrail.

We shall now say a few words anent the "get up" of the book. The paper is good, the print-

ing is bold and clear, and, together with the plates, which are well engraved, the whole mechanical finish of this Transatlantic work is most creditable.

In the volume under notice, a serious omission or oversight on the part of the binder has occurred, which, we trust, is not repeated in other volumes of the work. Plates 11, 12, 13, and 14 have no letter-press description to accompany them, while plates 9, 10, 15, and 16 have their letter-press description repeated twice. The publishers should look to this, and see that no defective volumes are issued. A similar oversight is likely to have occurred in other volumes: one displacement often causes many. The introduction to Mr. Riddell's work is sensible, and his practical hints for young beginners are excellent and commendable. A portion of his preface might have been unwritten; but, as the book is an ambitious one, the author must be forgiven his minor faults.

In conclusion, we can cordially and safely recommend "The New Elements of Hand-railing" to the sober attention of the building mechanics of this country. To one and all it will be found most useful. It dispenses with useless lines, simplifies the method, places everything clear to the understanding, bases construction on unerring scientific principles, and thus it is a valuable medium and auxiliary in the technical education and moulding of the skilful and practical workman.

A PLACE CALLED NEWLYN.

IT is in Cornwall, two miles from the heart of Penzance in a westerly direction, and on the same side of the beautiful bay as Penzance is. It is a town whose inhabitants are mostly engaged in fishing and in the employments connected with it. It is a town whose houses are perched and stuck about in a ragged, anyhow manner. You get into what you fancy the heart of the place, and walking on up a steep, shiftless, aimless sort of a street, *out* of Newlyn, as you fancy, you get more *into* it than ever. The heart of the place, as we innocently took it to be, is just one side of the place, the foot of the town, the place where the houses were the limit of the beach, and a dirty, sprawling stream, crossed by a low arch (Newlyn County Bridge), lounged along over mud, and dirty pebbles, and past garbage, and seaweed, and old boots, and bits of crockery, and fragments of glass, and logs of wood, and a heap of pebbles, and by the side of an old boat or two long past use, to the sea. (Note well, no one ought to go on the beach unless he can see where he is stepping.) Goodness knows where the heart of the town is. On going up the hill, houses are on all sides. Breaks between the cottages, paved with pebbles, lead from the street into small, open, paved courtlets, with an open kennel down through the centre, to which the paving is sloped. On one side of the courtlet would be the cottage or cottages, white outside as whitewash could make it or them; on the other side of the court, the stores for the nets, &c., called *cellars;* and at the end a blank wall, staring with whitewash. The paving is of small, smooth, brown pebbles, picturesquely relieved by the whitewash, and also by the thin, slow, bluish stream of sewage in the kennel. At last we found a high cliff, the boundary of the sea, and houses perched almost on the very verge, and we found another public-house, and another beach,—this time of sand, not pebbles,—and at last there was an end of the town. There are about 3,000 inhabitants. On the first blush we were disappointed in the estimate of the population, for there seemed no end to the place. Well, now, in this town of 3,000 inhabitants, how many *garde-robes*, public and private, do you think there are? You give it up. Then cutting the place in two, how many *garde-robes*, public and private, do you say there are in the moiety nearest Penzance, to serve the wants of 1,500 people? Should you say 200 or 300? Well, I have just inspected the place, and I could not find, or hear of *one*. 1,500 inhabitants of a town without a *W.-C.*, or anything approaching it! It is a fact, but I will make assurance doubly sure, I could not hear of *one*, but we will say there are six—6 for 1,500 people! The inhabitants empty their slops on the pebbly-beach; in the mouths of a surface-drain at the foot of the hill, made to catch the surface-water coming down at least half a mile of road; and in the stream. Some of them have to carry their slops,—by which they mean their culinary refuse and sewage matter,—about 100 yards, yet most of the houses are exemplarily clean; if it had not been for that, goodness only knows what would have become of Newlyn by this time!

Yet, as so much fever was continually in the place, and the streets, and the courtlets, and the beach, and the stream smelled so badly, and looked so filthy, the Board of Guardians thought something should be done; and, at last, the Highway Board thought something should be done (for Newlyn had no Local Board of Health, and its population is poor), and they went to work as only a Board of Guardians and a Highway Board can: they thought a sewer should be made, or, as they call it a *bolt;* they had heard, bless you, all about sewers, and knew as much about them as you, or I, or any other person. They knew they were splendid things for carrying off dirty water underground, unknown to anybody, though they may be walking and talking with each other over them: so they resolved upon making a *bolt*. It was a matter of secondary—pooh! of tertiary—importance, where the sewer was made, or how it was made, as long as it was made: a sewer was the thing, and therefore a sewer should be made, and they made it at the foot of the aforesaid hill. It was placed, where as it happened, it could drain perhaps ten cottages, and it emptied on the beach, and in six months after it was laid down, it was choked "bang up full," as my informant told me, "and my cellar is full of slush and mud. Good job I had got no fish there, as it would have spoiled them." There is no trap or *clack* at the debouch-pipe on the beach. But they made another sewer or bolt; or rather the Highway Board did that on its own hook. It cannot be less than 50 or 60 yards in length; it is not in connexion with a single house! but a mouth is at the land-end for reception of slops, and it is so elegantly contrived, that when once water gets *in*, it cannot by any possible means get *out*, for the mouth is lower than the debouch. These Boards had made these sewers, yet somehow Newlyn was still sickly, and still undrained, and dirty; they must do something, and so they did another clever thing: the surface-water drain that was made by the county to protect the county bridge (which I have said crosses the filthy stream) from the floods that came down this half-mile of hill, is used by the people in want of any proper accommodation, to hide their slops in. Of course a little of that made it dirty, and these clever authorities caused, through their Inspector of Nuisances, proceedings to be taken against the County Surveyor for allowing this surface drain to be a nuisance, and the justices of the peace, with their usual amount of sapience, sitting in solemn conclave at Penzance, told the County Surveyor he ought to know better (or what was tantamount to it), it was of no use—he must keep his drain clean; not a word to the inspector about the cause,—the want of privies, the want of sewers,—oh! no; the effect of the want was quite enough for them to deal with at one time. Now is not this a fine, well-grown instance of gross incompetency in the powers that be? It is very hard that England should be poisoned, her pretty sea-line defiled and made unhealthy, and her streams nauseating, simply because the men who have the power of making things pleasant and pure are thick-headed and uneducated.

Why cannot there be a guiding and directing central power for towns and highway boards? Why should the inspection of our towns be left almost entirely to the *Builder?*

What bad things the Truro people called "Pro!" yet most of his remarks have, we find, been attended to, and more work is in progress, though very slow progress, we must say.

Penzance is by no means a clean place, or a fragrant-smelling place; in all its surroundings it is but little, if at all, superior to Falmouth: yet Penzance shows an earnest wish to be clean and nice; Falmouth is profoundly indifferent or intensely antagonistic to any attention being paid to sanitary arrangements. The consequence is that Penzance is full of tourists; Falmouth is positively empty, and it deserves it. After "Pro's" articles appeared, now just twelve months ago, Falmouth promised to turn over a new leaf, and be good: she employed an engineer, received his plans, talked over them, and, I understand, adopted them, and yet not a stroke has been done towards the work, and when we were there last week, we were told what we were positive we should hear unless things were rectified, namely, that fever was gaining ground in the place, and choleraic complaints were prevalent; so that which we feared twelve months ago has come to pass: the punishment stage has been reached, and Falmouth will now know how awful the punishment is for inattention to sanitary matters. Strangers will avoid Falmouth; but it is hard the shopkeepers there should be doomed to starve or work harder than they need, because the authorities will not make the place fit for visitors or for themselves to live in (and yet it is not too hard, for have they not themselves elected the authorities?), while at Penzance the shopkeepers can live and rejoice? But it serves Falmouth right, for the remedy must be obvious, even supposing its average intellect not a whit superior to that of a Highway Board.

If the directors of the Cornwall Railway would be good enough to tell their engine-drivers that to whistle in the shrillest tone for half a mile on entering a station when the signals are right, is a trifle too much; and, above all, by not practising quaverings with their whistles, they would confer a boon on travellers. Of all engine-drivers, none can beat the Cornish at frightful whistlings; they particularly delight in the brake or danger whistle, we perceive; and, at the same time, if they would ask the red-headed person in a policeman's uniform who collects the tickets at Penzance station, to speak and act civilly to passengers, it might possibly be of service to the public.

PRO.

COLOUR AND ARCHITECTURE.

SIR,—The chief reasons which those who advocate the employment of colour in our church restorations offer for the universal adoption of the practice, may be stated to be the following:—

1. Because Gothic architects not only used colour in their churches, but designed them to be painted.

2. Because the use of stained glass in windows, which was part only of an entire system of coloured decoration, necessitates the use of colour also on the walls, arches, and other parts of a building.

As you have opened your pages to the discussion of this question, which is one of paramount interest at the present moment, you will perhaps permit me to offer a few remarks on these two postulates, and on the conclusions to which they are supposed to lead.

They both depend on an assumption, of the correctness of which no proofs whatever have as yet been adduced. Such proof as we have, in fact, rather tends to an opposite conclusion. Of the large number of churches that I have visited on the Continent and in Great Britain, very few exhibit traces of colour; and of that small number, still fewer contain remains of coloured design coeval with that of the building itself. Nor do these coeval paintings, where they exist, afford any ground for supposing that they were the work at that time, any more than in the present day, of the same hand that designed the building in which they are found. For architectural subjects, where they occur in the rare cases to which I refer, although evidently intended to represent contemporaneous work, are most incorrectly and ignorantly drawn; and the ornamentation, whether of foliage or other detail which is found in them, shows a style different from, and generally very inferior to, that of the carved work of the period.

Nothing is more probable, in fact, than that the duties of the architect in those days were limited, as they commonly are at the present time, to the design and construction of the building; and that the painting, stained glass, and further decoration were subsequently added, as the community for whom the structure was raised became more ambitious or more opulent, and were designed and carried out by a very different set of men, specially occupied with these works, and belonging possibly to the school or class of artists which illuminated manuscripts, designed tapestry, and emblazoned heraldic devices.

At all events, it appears impossible to maintain, until it is proved by more cogent facts than any that have been hitherto adduced, that the architects of the Middle Ages were the authors of the tawdry finery with which some of these noble buildings were subsequently clothed,—chiefly, as I believe, in the fifteenth century,—simply because these traces of colour have been discovered, and still exist in a certain limited number of early buildings.

It is indeed incredible that those who de-

signed the perfect masonry which is to be found in most of our cathedrals and abbey churches, and took the trouble of searching for, and transporting to the spot, often from great distances, stone of pure colour and fine grain,—of moulding it into rich forms and contours for the creation of an infinite variety of delicate effects of light and shade,—and of so preparing and dressing its surface, as to give it that effective texture so peculiar to Gothic work, and so agreeable to the eye; and who so arranged and disposed, in visible lines and in well-adjusted counterpoise, the beds and joints of all this admirable stonework, in pier, wall, arch, and vault, as to produce in the structure that evident union of constructive boldness and complete repose, and in the mind that feeling of elevation and of perfect satisfaction which the masonry of no other style or order of building that the world has seen is capable of producing; —it is monstrous, I say, to pretend that those who designed and realised these grand effects, more than half the charm of which is derived from the material itself, and its manifest constructive reality, intended to cover them up, deaden, and obliterate them with a coat of paint! Had this been their real intention, better far to have used a material more suited to their purpose; for of all building materials, except perhaps marble, fine-grained ashlar stonework offers the worst surface for the application of paint. Better far would it have been for the end in view, and far more durable as regards the paint, to have built rubble walls, and coated them with plaster.

Hence, indeed, arise the defects that have shown themselves in some of these modern painted works; as, for example, in the Chapter-house of Salisbury Cathedral, where the paint and its thick prefatory coating are already coming off, it is said, in large patches.

I cannot, in fact, understand how it is possible to suppose that the architects of these buildings designed that they should be painted; but, supposing any of them to have been so treated subsequently, as some conjectured, I can picture to myself, without difficulty, how, having delivered them in the condition to which, happily, many of them have been recently restored, their designers groaned over the indignities to which they were thus submitted by the clerical or professional decorators into whose hands they fell, and into the hands of whose successors in this line, unless the voice of common sense and good taste be raised energetically and universally, they are likely again to fall; for church restoration has, in many recent cases, taken this flagrant form. The clergy are urged to put more "warmth" into their churches, or, in other words, and more truly, to set their walls in a blaze; the church decorator is beginning to assert for himself a place among the handicraftsmen of the country; and, although the goddess of the day is not Diana of the Ephesians, her votaries are active and wealthy; and it is impossible to say how much mischief Fashion, these new interests, and the combination of adequate means and misdirected zeal may cause to our national monuments, unless this false taste, this hankering after the colour-pot and the gold leaf, be not speedily corrected and suppressed, or diverted into other channels.

Limiting my remarks this week to the consideration of this preliminary question of precedent and authority, I will, if you will permit me, next week enter on that of stained glass, and the arguments derived from its use in favour of this universal application of gaudy colours.

EDMUND SHARPE.

THE SISTINE CHAPEL AND ST. PAUL'S CATHEDRAL.

IN the endeavour to assist in giving a general description of the great series of paintings in the Sistine Chapel, it is to be hoped that in no long time some one or more of our great public galleries, as the British Museum, the South Kensington Museum, or the Royal Academy, will publicly exhibit in a convenient way, so as to be seen without difficulty, the complete series of autotype *fac-similes* of it, so *put together* as to fairly represent and reproduce, on a sufficient scale, the ceiling as it really exists. By this means, and by this means only, will the public have an opportunity of seeing for themselves what is meant by *painting* and "*decoration*," and what it really is to *paint* the ceiling of a church or public building. It is a subject just now of very especial interest, as is evinced by the great efforts being made to raise subscriptions for the decoration of St. Paul's Cathedral (a far finer building, be it observed, than the Sistine Chapel, and far more worthy of wealth and genius being spent upon it); so that it is worth some little thought and trouble to come at the full meaning of these frescoes, and at some probable means of doing something, if not equal to them, or even like them in any way, at least to try to follow in the track marked out by the great painter who did this work of the Sistine. Most true it is that we have not in this age any man equal to Michelangelo as a decorative artist, or, in other words, one capable of moulding the generally received and what may be termed orthodox style of decoration to a great and new purpose; or if we had, we are all quite sure and certain that he would have but small chance of employment in such a work, or in such a place, as St. Paul's, or Westminster. But still through the Sistine work something may perhaps be done towards indicating a way of going to work better than through a common shop. To help this we now simply outline a description of the great series of subjects which fill the Sistine ceiling, and complete the story told on it by the painter, reserving for distinct notice some remarks on the purely manipulative part of the work, and how such might be, perhaps, imitated in St. Paul's: rivalled, of course, it could not be. We have the panels which run down the centre of the ceiling, and the "Holy Families" which run round it, and the prophets and sibyls which also run round it, and the great sculpturesque figures which complete the architectural *framework* of it.

The prophets and sibyls which surround the chapel are twelve in number. They prophesy of the coming of a future King and Redeemer of Israel and man. The prophets on the part of the children of Israel, and the sibyls on the part of the Gentile or Pagan world. From the whole number of Hebrew prophets, Michelangelo has selected these:—Zachariah, immediately opposite the Prophet Jonah, and over the entrance to the chapel; Joel; next the Delphian Sibyl; the Erythræan Sibyl; Isaiah; Ezekiel, the Cumæan Sibyl; the Persian Sibyl; Daniel; Jeremiah; the Lybian Sibyl; and lastly, and immediately over the Last Judgment, Jonas.

Thus, with the Prophet Jonah is completed the series of prophets and sibyls, and which, with the "Holy Families," fill the whole ceiling, with the exception of the great centre panel, *regarded as one subject*, and a complete idea in itself. One is at a loss to conceive where the might of the painter has best displayed itself, every part being alike masterly and perfect as far as it goes, and as far as the intention of it demanded. The purely architectural and sculpturesque portion of the work is of such consummate execution, and so full of life and artistic power, that, were it alone, it would make this ceiling unique and without rival anywhere.

We more especially, in this short notice of it, refer to the series of figures which go to make up and "decorate" the purely *architectural* idea of the centre of the ceiling, but take no part in the story which it was the object of the great painter to tell on it. They represent the human form in almost every variety of attitude and posture. They are shown as sitting or reclining opposite each other, between the panels which contain the story of the Creation, and add not a little to the interest of the whole work artistically, though they do not, as it would appear, help the story itself. Each figure is a great study, full of intense force and life. Nothing, indeed, in the whole range of art can possibly surpass in vigour and in masterly drawing, and in life and variety of action, these naked human forms. They are twenty in number, ten on each side of the ceiling, and are arranged in groups of four, one at each corner of the panels on which are the great subjects, painted on the centre and flat of the ceiling. Thus two figures always face each other on the same side.

Although these great figures occupy but a subordinate part in the idea of the ceiling, they are, in a certain sense, the most curious and interesting part of it. They show how universal and comprehensive was the mind of Michelangelo, and how he condescended to small, and what many would consider almost contemptible, details. No drawings or points show it, but the autotypes, which are *fac similes* of the paintings themselves, do. These figures are not engaged in mere posturing, but are holding up by folds of cloth the circular panels which run round the ceiling, under every alternate subject in the centre of it, and the mode in which this is done is almost as wonderful and inventive as the drawing and conception of the great prophets and sibyls themselves. Both the hands and feet of these nude figures, both male and female, are engaged in the work, and nearly every possible posture and way in which these circular rings could be held up or kept steady by the united action of the hands and feet are shown. These folds of cloth which support the panels are held, in some cases, by rings let into the stone seats on which the figures may be seated, and the feet are employed to tighten the cloth fold as the outstretched hands and arms pull it through the slit in the ring which it holds up. We are not aware that this has ever been noticed by any one before who has attempted to describe this work of Michelangelo; but there is enough in it of invention and wonderful drawing to make the fortune of any ordinary painter. One would hardly have thought that Michelangelo, with his mind occupied with such lofty subjects as the ceiling portrays, would have had such trifles in mind at all; but his vast genius was all comprehensive, and nothing was really trifling or little to him. These figures, as we have said, sit opposite each other, so that the long fold of cloth running through the slits in the rings holding them up and standing them by the joint action of each two of the figures, and the whole action of each figure, are the result of the effort to tighten the cloth, and thus to steady the ring. How impossible is it to *manufacture fine art* or inventive art? Here, do we not see the greatest artist that perhaps the world ever knew, at least in modern days, employed for weeks in painting these magnificent forms thus triflingly engaged?

If the reader, when opportunity offers, will go through, even in a cursory way, these sublime compositions, and will think but for a moment of the influences which brought them into being, and the money they cost (a very poor sum indeed), the age in which they were executed, and the ruler under whom they were given to the world, he will have cause to feel truly thankful that so many circumstances got together to produce such a result. The ignorance or knowledge of the time in which Pope Julius and Michelangelo lived asked for decoration, and demanded, at the same time, so fortunately for us, that decorations should mean painting and sculpture, and not merely manufacture and business. The unhappy "East end" of St. Paul's is, we must presume, an accomplished fact, and remains only to be filled in with imitation mouldings, panels containing nothing, and bits of gilding; and the whole building is to cost, so it is stated, a quarter of a million to complete in the same way! Might we not here suggest that before the *nave* is touched, some other plan suggested by the Sistine ceiling should be thought about, and that instead of "imitation panels," filled with emptiness, being painted on the roof of this nave, the panels already there, and put there by the architect of the building, should be filled in with genuine painting by a Painter?

SOCIAL SCIENCE CONGRESS.

THE forthcoming annual meeting of the Social Science Association, to be held at Newcastle-upon-Tyne, from the 21st to the 22nd inst., bids fair to become a great success. The local authorities are using every means in their power to do all they can to find the best accommodation for the delivery of the addresses, and the holding of the discussions. Besides which their efforts are unceasing in making provision for *soirées*, excursions, and private hospitality. We understand the special questions in the various departments will be introduced by good papers, and by experienced men. Papers on the sewage question are being contributed by several gentlemen of different views. The sanitary laws will be taken up by Mr. W. H. Michael, barrister-at-law, and the Right Hon. Sir Charles Adderley, M.P. Dr. Letheby will read a paper on the Adulteration question. Other papers of importance in this department, on water supply, cottage hospitals, and construction of sewers, will be read. In the economy and trade department, the special questions are as follow:—

1. Is it desirable that the railways should become the property of the State?

2. By what means may the labour market throughout England be more equally supplied; with special reference to local and temporary distress?

3. How far is it desirable and practicable to establish courts of conciliation, or arbitration between employers and employed?

4. How far is it desirable and practicable to extend partnerships of industry?

The two latter questions will be discussed under the able chairmanship of Mr. Rupert Kettle, the county court judge, a gentleman who has interested himself much in the disputes between masters and workmen.

Papers on the Arbitration and Conciliation question, will be read by Mr. John Jones, of the Iron Trade Offices, Middlesbrough; by Mr. John Kane, of Darlington; and by Mr. William Owen, of Hanley.

The partnership of industry question will be treated by Mr. H. C. Briggs, of Seafield Works, Dundee, and Mr. E. O. Greening, who has had great experience in the working of the principle. There are a number of other papers in this department, of a miscellaneous description, and most of them on very important subjects.

As usual there will be a working men's meeting, and two *soirées*, besides several excursions to places of interest, among which may be mentioned the Roman wall, the manufactures on the Tyne, and Alnwick Castle, the residence of the president, the Duke of Northumberland. A ladies' conference will also be held in connexion with the association. The arrangements are now nearly complete, and a large and influential gathering is fully expected.

THE DRAWINGS FOR THE HOUSES OF PARLIAMENT.

WE have reason to believe that the law officers of the Crown have declared that the drawings for the Houses of Parliament are the property of the Crown, and that these have been formally demanded from the architect. Whether their opinion applies to other cases we do not know. Doubtless, however, it refers only to this special case, in which there may or may not be peculiar circumstances. It will now be for Mr. Barry to comply or not, as he may think proper. He has shown himself ready to support the rights of the profession, and if called on by the general body and indemnified by it against expenses, would probably still further resist, and allow the question to be tried in his name. We cannot expect, however, that personally he will longer refuse compliance; no friend, indeed, would advise him to array himself individually in a court of law against the Government, to whom he is at the same time looking for future employment. Unless, therefore, the profession at once unmistakeably declares itself on the subject, he will doubtless now feel himself bound to place the drawings at the disposal of the Government, with a firm, though respectful, protest.

A PLANING SAW.

THE invention and improvement of wood-working machines is a matter of considerable importance, and we watch with interest all steps in that direction. The "General Joiner," and some other machines to which we have drawn attention on several occasions, might be much more widely employed than they are. Their use spreads.

Lately we have examined, at the works of Messrs. Mansfield, Price, & Co., a machine known at present simply as "Llewellyn's Patent," which is applicable to the squaring, planing, grooving, and rebating of wood; and when used as a saw, performs the operation of planing on each side simultaneously. It does its work very well, and is likely to be useful to builders, cabinet-makers, pianoforte-makers, and others. The chief point of the invention lies in the form and arrangement of the saw-teeth.

THE IRON AND STEEL INSTITUTE.

THE annual provincial meeting of this Institute has been held this year at Merthyr-Tydfil, with excursions to Dowlais and Swansea. The Duke of Devonshire, as president, and the Marquis of Bute, were present, with other notable persons. Mr. Bessemer, who was present, was elected president for the next year. The meeting continued for four days, Monday, Tuesday, Wednesday, and Thursday, in last week. Papers on the Geological Features of the South Wales Coal-field, by Mr. W. Adams, of Cardiff; on Pumping and Winding Machinery, by Mr. G. C. Pearce, of Cyfarthfa Iron Works; and on the Condition of Carbon and Silicon in Iron and Steel, by Mr. G. J. Snelus, of Dowlais, were read on the first day. On the following morning an excursion to the Plymouth and Cyfarthfa Works took place; and papers on Pyrometers, by Dr. C. W. Siemens, F.R.S., and on the Efficiency and Durability of Plain Cylindrical Boilers, by Mr. Jeremiah Head, of Middlesbrough, were read in the Temperance-hall, Merthyr. The excursion to the Dowlais Iron Works also took place. After the inspection of the works, a sumptuous champagne luncheon was partaken of in the reading-room. On Thursday, Swansea was visited for the purpose of inspecting the Landore Siement Steel Works and the Swansea Copper Works. The mayor of Swansea invited the party to luncheon in the Mackworth Arms Hotel. Friday was devoted to an inspection of the Monmouthshire Iron Works.

The meeting has been regarded as a great success.

MONTACUTE, SOMERSET.

THE interesting and ancient church of this town is undergoing restoration. During the course of the work several interesting features turned up. The restoration will cost over 2,000*l*. The parishioners have agreed to raise 1,600*l*. of that sum by rates. The chancel and the roof of the nave, which also require repair or restoration, are to be undertaken at the expense of Mr. W. Phelps. Mr. William Pudden, of East Coker, in the same county, is the contractor. Money has been raised by the aid of a bazaar, and several handsome donations on the part of private individuals, have been given. Not the least worthy of mention is the gift of 25*l*. from Mr. G. Mitchell, of Brompton-road, London, who was formerly a poor lad living in the village of Montacute, and is now a flourishing tradesman.

STRASBOURG CATHEDRAL.

FEW cathedrals in Europe are better known to the general run of men than that of Strasbourg, and just at the present moment every one must feel a certain amount of anxiety on account of the danger with which this magnificent temple is surrounded. We may any day hear that this church, which is one of the wonders of Europe, has been reduced to a heap of ruins. Let us hope, however, that it will be spared so sad a fate, and that, whether the French retain possession of it or it is handed over to its original builders, the Germans, it may still remain uninjured for future generations.

The cathedral of Strasbourg is of various dates, the earliest portions being the transepts, choir, and two eastern chapels, which, we need hardly state, are not of the age attributed to them—*i.e.* the tenth century,—but are, without doubt, the works of the end of the twelfth century. The choir or chancel consists of a large semicircular apse and the portion of the church between the transepts. It is raised some 20 ft. above the level of the nave and transepts, and beneath it is a crypt, half above and half below ground. This crypt is divided by slender columns into three equal aisles; it is entered from the west, by flights of steps descending to it on either side of the steps approaching the choir above: it is lighted by windows or openings in the side walls looking into the transepts. The "crossing" which forms the western portion of the choir is roofed over with an octagonal cupola, lighted by four small Romanesque windows. Each transept opens into the "crossing" by two arches instead of one. This arrangement is rendered necessary by the transepts being divided down the centre by a spine of columns. All these columns are circular except one, which is shown in our engraving. It consists of a cluster of eight shafts, of which the alternate ones are carved into statues of angels and prophets, wonderfully fine examples of thirteenth-century sculpture.

Opening out of the east side of each transept is a chapel on a lower level than the rest of the church, and divided into three aisles by columns. These two chapels or crypts may be of a slightly earlier date than the transepts, and are, consequently, the earliest portion of the existing church. Above the double arch leading into one of these chapels is a kind of triforium. In front of it runs an exceedingly elaborate flamboyant pierced parapet, leaning over which is a well-executed statue, life-size, said to represent Erwin von Steinbach, the architect of a considerable portion of this cathedral.

The nave is a most glorious example of the earlier portion of the fourteenth century or end of the thirteenth; it is, in fact, one of the noblest Gothic naves in existence, of grand dimensions, nearly 50 ft. in the clear, and over 100 ft. high. The clearstory is pierced by superb four-light windows, filled with magnificent stained glass coëval with the building; below these is a triforium consisting of four two-light openings, with glazed windows at the back also filled with stained glass. The main arches supporting the triforium and clearstory are of noble proportions, richly moulded, and supported upon clustered columns of great beauty. The aisles are also lighted by four-light windows, also full of stained glass, as, in fact, is every window in the building. Opening out of the aisles are two very large Third Pointed chapels. The church contains some fine furniture. A stone pulpit, of most complicated design and elaborate execution, in a fine state of preservation, and adorned with much delicate and beautiful sculpture. A font of equal beauty, both in design and execution, stands in the north transept beneath a deep Romanesque arch. The organ is also a very valuable example of ecclesiastical furniture; it is bracketed out from the third arch of the nave from the west end, and is a good example of flamboyant woodwork, richly decorated with colour. We must also notice the well-known remarkable clock standing in the south transept.* Perhaps no cathedral in Europe presents such a magnificent view as the grand perspective which strikes the eye of the beholder upon entering the western door of Strasbourg Cathedral. Not only is the architecture magnificent, but the colour is equally superb. Every window glows with the richest stained glass, and the walls are built of a dark crimson stone, which has received a magnificent tint from time.

It is not our purpose again to describe the exterior of this cathedral, of which we have often spoken. We will not, however, pass it over without pointing out the two exquisite statues of the Church and the Synagogue attached to the doorway of the south transept: it is not too much to say that the best Greek sculptors never produced anything more beautiful than these two figures. They date from the commencement of the thirteenth century.

Much as we admire the cathedral of Strasbourg, we cannot extend that admiration to the spire or the west front, which are, undoubtedly, the least admirable of the whole church in point of design. The spire cannot be compared with its neighbour at Freibourg, or with that of Vienna or Chartres.

Several other churches in Strasbourg deserve notice:—

St. Thomas's is a beautiful Romanesque building, with a graceful fourteenth century nave and much fine stained glass. It now forms the chief Protestant church in Strasbourg.

St. Peter's the Elder contains a fine rood-screen of stone, well vaulted. This church is divided by a wall. The chancel is used by the Roman Catholics, and the nave by the Protestants.

St. Peter's the Younger is also divided in a similar way between the two religions. Like the former church, it contains a fine rood-screen, and in the chancel windows there is a good deal of fourteenth-century stained glass. In the modern panelling surrounding the chancel a series of very curious and beautiful old pictures has been introduced. These pictures are works of an Alsatian artist of the fifteenth century.

The church of St. William also contains a stone rood-screen and much fine stained glass.

St. Margaret's contains three superb stained-glass windows in the apse.

The (former) Dominican Church, now used for Protestant worship (except the choir, which is used as a library†), possesses a most superb stone rood-screen, divided into nine vaulted compartments. This church has a row of columns down the centre of the nave.

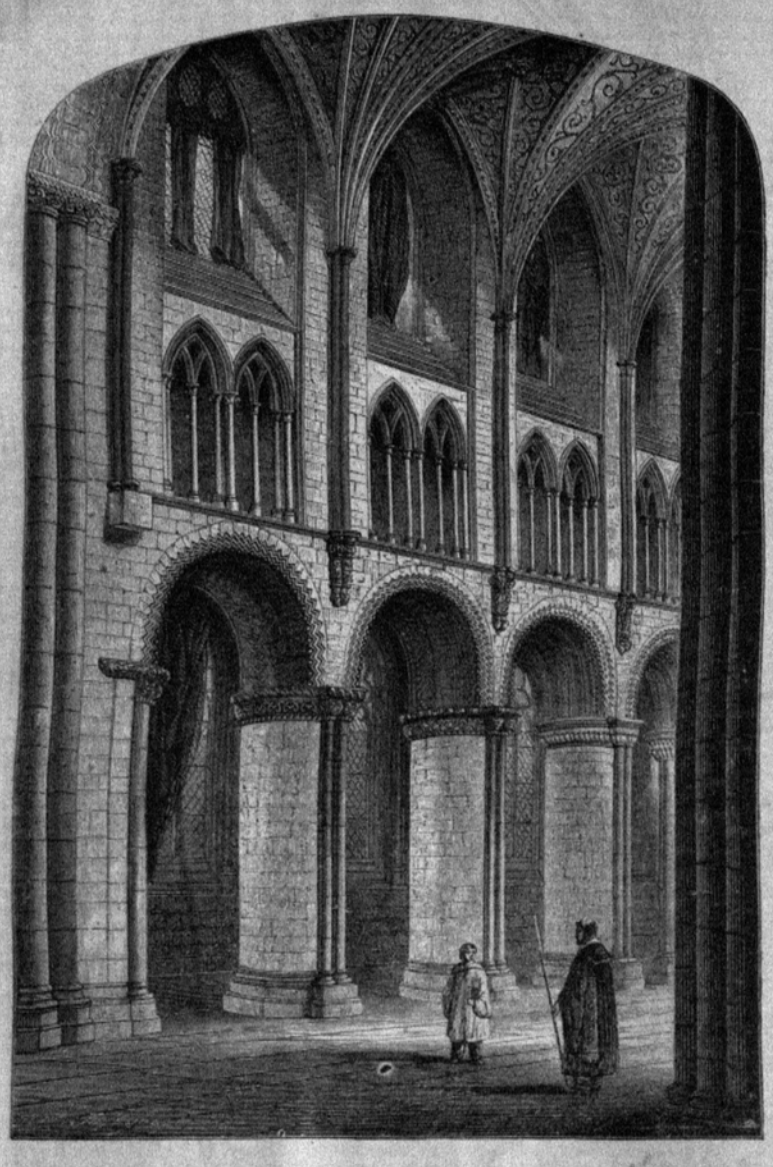
Strasbourg also contains some good domestic architecture, and one or two ancient towers, one of which is roofed with glazed tiles in patterns, and still retains its ancient *bretesches*. This tower is given by M. Viollet-le-Duc, in his invaluable "Dictionnaire."

We sincerely hope, though it can scarcely be expected, that all these interesting works may escape uninjured from the present danger which threatens them.

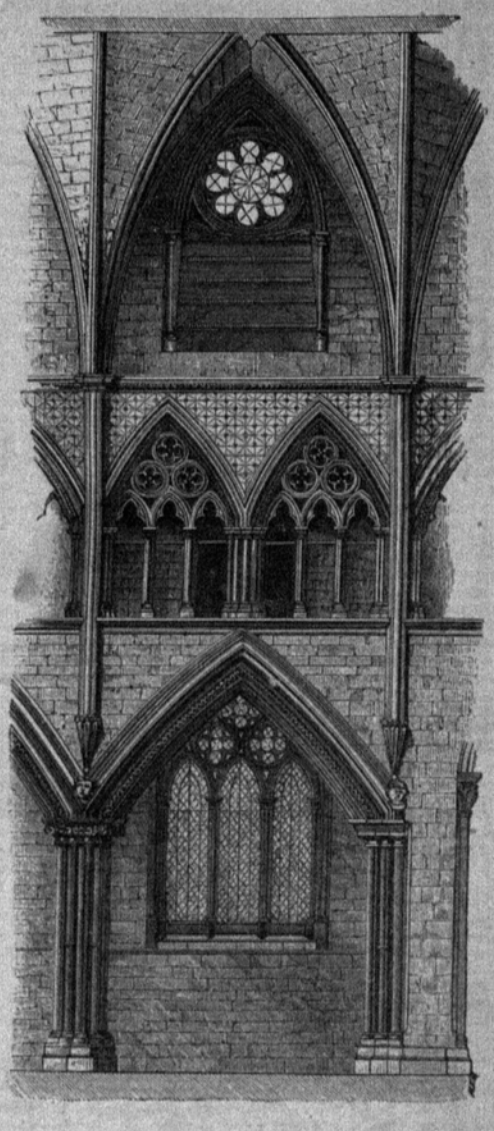
* The report that the organ and clock here described *have been* destroyed, seems to us unlikely from their position in the church. That they may have been injured is possible, but we hope to find out that the news is entirely devoid of foundation.

† Said to be destroyed.

HEREFORD CATHEDRAL.



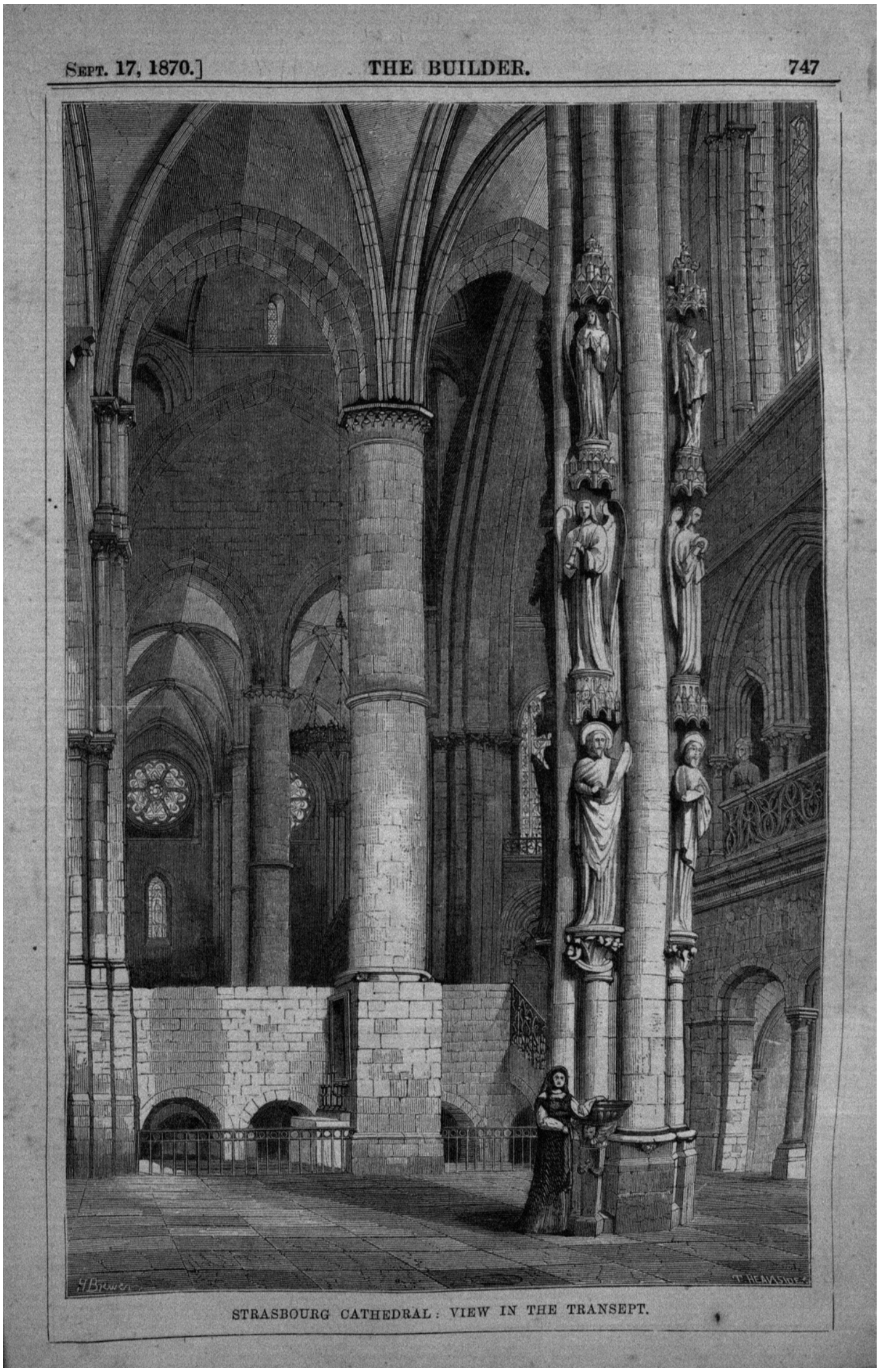
ARCHES OF NAVE.



BAY OF NORTH TRANSEPT.

SHRINE OF BISHOP CANTILUPE.

[See p. 737, *ante*.



STRASBOURG CATHEDRAL: VIEW IN THE TRANSEPT.

NEW ORPHAN HOUSES ON ASHLEY-DOWN, BRISTOL.

ANOTHER "brief narrative of facts relative to the New Orphan Houses for 2,050 children on Ashley-down, Bristol," has been issued by Mr. George Müller, and is a very interesting one, inasmuch as we are enabled to trace by it the progress of his enterprise from its commencement. As in former years, many gifts have been sent in kind or in substantive articles to be turned into cash. The motives assigned by the various donors for sending their offerings, and the modes by which they state the amounts of those offerings to have been measured, are as various as the gifts themselves. Some of the special considerations noted are almost grotesque in their character. One donor, on page 28, states that having bought a horse, the soundness of which he doubted, he determined, if he turned out well for twelve months, to give 3*l.* to the orphanage. The horse had turned out well, he states, and he encloses his money. Another sends 2*l.* 2*s.*, because he has been enabled to effect a difficult building alteration! Mr. Müller has been enabled not merely to meet the current expense of the year for the various departments of his great work, amounting to 37,700*l.* 18*s.* 9½*d.*; but he had, he tells us on page 36 of his little work, more in hand when the accounts were made up than when the year commenced.

A SELF-SUPPORTING GAOL.

THE annual report of Mr. Caldwell, governor of the self-supporting gaol of Dunedin, Otago, New Zealand, has just come to hand. It is dated the 26th of April, and is for the year ending the 31st of March, 1870. The following is a summary of this interesting document:—The votes of the Provincial Council for the year in respect of the gaol department were—salaries, 3,912*l.*; departmental contingencies, 2,210*l.*; tools, materials, horses, &c., 1,400*l.*; works and buildings, 50*l.*; total, 7,572*l.* 15*s.* Of this sum 6,701*l.* 10*s.* 8*d.* have been expended, leaving a balance of 871*l.* 4*s.* 4*d.* in favour of the gaol, and showing a decrease of 680*l.* 12*s.* in the expenditure, as compared with that of the previous year. The total value of remunerative labour performed by the prisoners during the year was, with miscellaneous items, 7,117*l.* 16*s.* 6*d.*, being 416*l.* 0*s.* 10*d.* in excess of expenditure on the gaol. This amount is somewhat less than the profit of the previous year, which is accounted for by the fact that during the twelve months the price of every man's labour has been reduced by 1*s.* per day. That this establishment is fully self-supporting seems to have caused considerable discussion and some surprise among those interested in and connected with prison discipline, not only in New Zealand and Australia, but in Great Britain and Ireland. Mr. Cardwell, premising that no charge whatever is made for work in the gaol for the purposes of cleanliness and order, or clerical assistance, or for cooks and servants, shows how the result has been obtained in the employment of prisoners in the removal of Bell Hill, containing 21,944 cubic yards of rock, to form a retaining wall in the harbour, and on board the harbour dredge, in a jetty extension, and the erection of a reclamation wall, repairing streets, &c., tradesmen's work being accounted for weekly. Every article manufactured or repaired is charged according to the price which the gaol department would have had to pay in the market, or at the rate of 6*s.* daily for carpenters, blacksmiths, painters, and plumbers; and 5*s.* for stonemasons, tailors, and shoemakers. The number of prisoners received during the year was 770, including 74 Maories, 19 debtors, and 11 re-appearances. Of these 542 were males and 198 females. The highest number of prisoners was 187 on the 21st of March, 1870; and the lowest 95, on the 18th of October, 1866. The daily average, during the year, was 130·51. The average daily number of female prisoners was 9·95, of whom one-third were employed in washing the prison clothing, and the remainder in making shirts, flannels, and under-clothing. Respecting the Maories Mr. Caldwell says, "In accordance with arrangements with the General Government, 74 Maori prisoners arrived on the 6th of November, 1869, under sentence, 12 of seven and 62 of three years' servitude for high treason. Nearly one-fourth were not fit for anything like laborious work. The remainder were a powerful body of men, but untrained to regular continuous labour. They were unaccustomed to clothing, but in an incredibly short period appreciated the comfort of the prison dress. They have been employed in the Botanical Gardens, at the High Schools, and in reclaiming streets, at 2*s.* 6*d.* per day, and in breaking road metal at 2*s.* per day, the total amount of their earnings during the five months being 640*l.* They are well behaved, industrious, and strongly attached to their chief, Riharo Watone Ngawakataurua, who has a paramount influence over them, which is exercised in behalf of order, regularity, and discipline. There is no race more easily trained and controlled by judicious management. They are very devotional, and attend prayers with much apparent earnestness and sincerity. One of their favourite indulgences is writing to their families and friends in the north. Immediately after their arrival one of the oldest of the hapu died, and since then four more have fallen victims to diseases they brought with them—asthma, disease of the lungs, dropsy, paralysis, and general decline."

INIGO JONES'S "YORK STAIRS."

SIR,—Have you noticed the present condition of the Water-gate? I could not regard it from the end of Buckingham-street the other day, without mingled feelings of regret, and even anger, that a monument so fine should now occupy a site so absurd and out of place.

Is there nothing contemplated as to a future position for it? Could it not even yet be made to occupy an honourable place along the "Thames Quay?"

I venture to bring this under your notice, in the hope that you may feel disposed to take up its forlorn case out of respect to one of England's greatest architects.

It may be I am anticipating other people and their plans: if so, I would ask pardon, but intercession is surely not altogether uncalled for.

R. P. W.

FALL OF A WEAVING SHED IN MANCHESTER.

A FATAL accident, involving the loss of a life and injury to several other persons, has occurred at the weaving-mill belonging to the executors of the late Mr. T. C. Faulkner, and occupied by Mr. Johnson, in Portugal-street, off Poland-street, Oldham-road, Manchester. The mill, which is an old one, is two stories in height, and both the ground floor and the floor above were filled with heavy iron weaving-looms, there being about 100 looms on each floor, and at the time of the accident there were fifty-nine operatives at work on the premises. While the weavers were engaged at their work a large portion of the middle of the upper room—a space occupied by eight looms—gave way, and without the slightest warning, carrying with it the operatives engaged in that part of the room, and burying them, as well as those who were at work in the room below, in the tons of machinery, flags, and *débris* which fell. Happily, there were only a few persons at work on the looms in the upper floor at the time. One woman, however, was killed, and several other persons were injured. The accident was caused by one of the iron pillars in the centre of the shed giving way. It suddenly sank about 3 ft. The arches, which are 12 ft. span, had only about 12 in. rise.

At the inquest, Mr. Levi Slater, the manager for Mr. Johnson, said the mill had been built about ten or fifteen years. The only way that he could account for the accident was that there was a sewer underneath, and that the pillar had worked its way into the sewer. The pillar stood on a solid block of stone, about 2 ft. square, which he supposed must have gone down first. The pillar was used as a drain. He felt sure there was no perceptible giving way of the soil.

Mr. Johnson said he had occupied the mill about five years. His impression was that the pillar had sunk. It and some others were used as drains in order that they would open into some horizontal drain.

Mr. J. G. Lynde, city surveyor, said that the column being used as a water-pipe, there would be at the bottom a hole from which there would be a short branch pipe into a drain. He could only account for the sinking by supposing that the water escaping at the junction would gradually sap the foundation of the column. The best construction would be to have brick foundations going down several inches below the bottom of the drain. He thought the fall would be quite sudden, owing to the construction of the floor.

The jury returned a verdict of "Accidental death," and expressed the opinion that the foundation had not been constructed with sufficient care, and recommended that no person should be employed until the safety of the other pillars had been fully examined.

NEWHAVEN IMPROVEMENTS.

WE are glad to see that Newhaven is looking up, and that our suggestions in the beginning of the year are likely to have a practical effect. The harbour and the town, as we have previously pointed out, stand sorely in need of improvement. The old ship-building yard, we learn, is taken, and ship-building and repairing, on a large scale, it is said, may soon be expected to be in operation. Newhaven has some natural facilities and resources that can be readily developed. We have pointed out her possibilities, and, with a little energy and public spirit, these possibilities can be changed into realities.

The completion of the fortification at the mouth of the harbour is expected to result in benefiting the town. The Ouse between the bridge and the mouth of the harbour requires to be deepened, and there is work always for the operations of a dredge. The river also requires to be embanked, and proper landing-wharfs constructed on either side. These are some of the pressing and present wants of the town.

MIDDLE-MEN HOUSE-OWNERS.

SIR,—University, collegiate, and church house property is invariably the most neglected. Complaints to the owners are always met by referring tenants to their inexorable solicitor-agent, to whom they are "*farmed*." His reply is, "You can leave." But that means ruination to shopkeepers and manufacturers. These legal tyrants keep within the law, exacting the highest rents, and ignoring repairs. The real owners of these houses should hearken to oppressed yearly and quarterly tenants, and not permit helpless honesty to be crushed by their grasping under-tenants.

I could relate more (with names) than it would be safe to publish of these "*middle-men*."

R. T.

SASHES.

IN reading the letter by "G. L." the following thoughts occur to me:—That, as the lifting sashes will probably continue to be preferred, it is advisable to render them as free from objectionable qualities as possible. If the pulley styles be perfectly straight and parallel, and if the sash styles be carefully prepared to one thickness, and scarcely touched in cleaning off, and if the sashes be properly fitted, there will not be much room to allow them to rattle, but the corner of the sash may catch if not taken at the middle in lifting it up.

Springs, instead of weights, were used in some cases in old houses, but the amount of friction against the (in that case) solid jambs would cause them to work very badly.

Might it not be possible to have in the edge of each sash style a mortise at the top and one at the bottom, and an iron box to fit it easily, and having underneath a couple of spiral springs to prevent its readily going quite home in the mortise? If, then, an axle roller were in the cast iron or brass box spoken of, and the springs of proper power, then the sash would go up and down without weights.

HENRY AMBROSE.

SIR,—In your number of this day's date I observe a letter respecting an improved mode of securing window-sashes. Now, I have often wondered why we should have window-sashes at all, because they are open to so many objections.

1. It is very inconvenient, and especially for weakly persons, to lift them up or pull them down.

2. The cords are very liable to break, or become detached from the weights, thereby rendering them comparatively useless.

3. They are very difficult to clean, and often dangerous.

I have often wondered why our builders do not adopt the French style of windows, which ignores sashes altogether. The French folding windows are easily opened, are easily and safely

cleaned, and are not liable to get out of order. Where the two sides meet, they are not joined by a simple rabbet, but one is convex and the other is concave, so that the joining is almost air-tight. And then the beautiful bolts that shoot up and down with the same motion render them perfectly secure.

I am not a professional, and therefore am unable to say whether sashes are continued from custom or prejudice, or whether there are any economical or sanitary reasons for the continuance of them; but I must infer, from their almost universal adoption, that the trade has some justifying reason. As, however, the French plan appears to me vastly superior to the English, I shall feel greatly obliged if some of your correspondents would kindly inform me why the sash is adopted in preference to the French folding window. M. H.

*** One reason is, that the slightest opening of the latter produces a draught at sitting level, while the other may be opened above while close and safe below.

FOUL GASES AND ABSORBENT WALLS.

SIR,—I wish to make a note, as a builder who has had large experience in sanitary matters in old drains, cesspools, and fever dens, and has not lost the opportunity of trying experiments. In any fever house you will see on the walls and the lath and plaster, a dark, dirty, cloudy colour, which is greasy; and by cutting it out where it is seen, and causing it to ferment, you will find it contains foul vapour. It must ferment under a round glass, air tight; the foul gas will be found on the glass. The cause of its getting into the wall in most poor localities is this,—the people live in poverty, and they mostly lie close to the wall, and in the summer months it ferments. A weak or sickly child takes the foul gas by lying close to the wall, and illness follows. If these spots are not entirely removed, the portions left will increase and spread. No bedstead should be nearer than 4 in. to any wall. Some years ago, when the cholera raged in King-street, Regent-street, the bedsteads lay close to the wall. When the houses had to be cleansed, in cleaning the walls, the stains were a long while getting rid of; and the medical officers at that time who attended on the sick may remember how the walls had to be scraped for the grease that was upon them. From that time I have cut out these signs to learn what they contained. Whoever studies an old lath-and-plaster house will not repent so doing. F. W. J. NASH.

BUILDERS' BENEVOLENT INSTITUTION.

WE wish to draw the special attention of our readers to the advertisement at the head of our list of this week. From it they will find that the annual dinner of the Builders' Benevolent Institution will take place on Thursday, the 27th proximo, or in six weeks hence. Meantime, those desirous of promoting the interests of the Institution by becoming stewards are requested to forward their names to the secretary, at the office, 4, Vernon-place, Bloomsbury-square.

AN IMPROVED LODGING-HOUSE IN BIRMINGHAM.

AN endeavour has been made in Birmingham to provide accommodation for working men who at present are obliged to have recourse to common lodging-houses. The premises are 376, Summer-lane, formerly the Sydenham Medical College. They have been fitted up with great consideration for the health and comfort of the occupants. There are 13 first-class, 33 second-class, and 24 third-class beds; the first each in a small room by itself, the second in open rooms, and the third in open rooms—two persons to sleep in a bed. The charges for these are the same as in common lodging-houses—namely, 4d. a night for the second-class, or 2s. a week; and 3d. a night for the third-class, or 1s. 6d. a week. The first-class beds, giving privacy which the common lodging-house proper—or rather improper—knoweth not of, are 6d. a night or 3s. a week. The rooms are heated with hot-water pipes; and whereas they are licensed under the Common Lodging-house Act, for ninety-three beds, only seventy are placed in them, so that there is no overcrowding. Each first-class bed has its own washing-place; for the other classes there are lavatories. A large kitchen, constantly in charge of an attendant, supplies the means of cooking, which is done by the lodgers themselves, and each lodger has a separate locker for his food. The washing is done in a laundry at a fixed charge, or by the lodgers for themselves. The kitchen serves also as a common sitting-room, and smoking will be allowed there; but a superior and very comfortable sitting-room, supplied with papers and books, is provided, in which smoking is not to be allowed. The premises have been adapted to their new purpose by Mr. Douglas Williams, architect, New-street.

NEWPORT ARCH, LINCOLN.

SIR,—In revisiting this my native city, and passing beneath that glorious old Roman relic known as "Newport Arch," I was equally astonished and disgusted to see that it had been desecrated by the erection of a red-brick urinal affixed to its northern side.

As this old edifice is one of the very few perfect specimens of Roman architecture in Great Britain, and one of the finest ornaments of Lincoln, I think that something should be done to remove this disgrace to our ancient city.

As local appeals would in all probability be disregarded, could it not be urged, through the medium of your valuable paper, upon the Corporation (*i.e.*, the Local Board) of this city that so shameful a disfigurement should be abolished.

LINCOLNIENSIS.

*** It will, we hope, only be necessary to point out the mistake that has been made to have it rectified.

LEEDS UNION-INFIRMARY COMPETITION.

THE design by Mr. Walker, Leeds, has obtained the first premium. The second was awarded to that by Mr. W. Bakewell, which includes several points of merit. The *Yorkshire Post* says,—The other five designs, which, with those receiving the prizes, make up the seven chosen by the committee from the aggregate number sent in, are well worthy of study. "Sanitas" (No. 8), is remarkable for its ornamental character. There are two pavilions, with an administrative block, and an open space is left which may be used as a recreation-ground. In this plan Sherrington's ventilators would be used. "Experientia" (No. 19) provides for two pavilions, also having a space which might be used as a recreation-ground. Each patient would have 1,217 cubic feet of air. The administrative department is disconnected from the main building. This candidate believes that windows, gratings, and other ordinary means of ventilation would be sufficient for securing a proper supply of good air. "Leeds" (No. 18) shows the administrative block in the centre, there being two pavilions, each having three wards. Foul and fresh air flues, with regulating ventilators, would be introduced for ventilating purposes. "Points" (No. 6) has the same number of pavilions as "Leeds," and his administrative block is situated in the same manner. He would place a sunlight in the centre of the ceiling, and have an air-shaft with flues leading outwards. The last of the seven which we shall refer to is that marked "Economy" (No. 2). It provides for three wards in each pavilion, and there would be adopted by the designer the plan of having a ventilator of the "hit or miss" kind at the top of each bed. The manner adopted at the Chorlton Hospital of ventilating the windows is recommended.

WELLS AND CESSPOOLS.

SIR,—I know very little of sanitary arrangements, but I am sure ours are wrong, and I should feel more comfortable if you would tell me roughly whether they are "as usual," or "dangerous," and also tell me the kind of person to superintend their improvement. We feel quite at sea; should we consult a *builder, architect, nuisance-inspector, or whom?* I mean as to details. I inclose an accurate drawing of the most objectionable parts. You will see a square "well." This is bricked round 2½ ft. deep, bottom made of clay. Its primary use is to receive the washings of the yard, bedroom slops, &c.; the sediment and large pieces accumulate, the liquid passes off to the right through a fine grating.

But on the left side of the "well" is a passage, *horizontal through its whole length*, meant for an overflow for the underground rain-water cistern.

Plainly, what must happen is—

1. Well gets full, in time, of rubbish, grease, &c.
2. Overflow being only 1½ in. above drain, all sewage passes into rain-water tank.

And this is what did happen! Imagine our consternation. The water grew worse, gave off sulphuretted hydrogen in large quantity, and led to these revelations.

Add to this the cesspool, whose surface, when last examined, was 1 ft. below surface of stuff in well, and 2 ft. *above* surface of water in cistern, and we found it to be all not of solid, but quite liquid sewage, stinking frightfully.

One side seems made of loose stones; the others we cannot get at. Its opening is 1 ft. square, and can be covered, but the privies adjoining cannot well be closed.

The whole ground about the house reeks with horrible smells; every crack seems to conduct up the effluvia, and yet the former owner of the house assures us that the drains were planned "by a London architect." I shall hope to see a reply in your next number. W. F. HOWLETT.

Briercliffe Vicarage, Burnley.

*** The condition of things here described is dangerously bad, and should be remedied immediately. A good and intelligent builder will see at once what should be done.

CHURCHES NEAR LONDON.

St. John's Church, Clapham.—This church, which has been closed for repairs, was re-opened on Sunday, the 4th inst. St. John's is a modern church, of the Classic order of architecture, and had internally but little ornament. It has now been entirely repainted and decorated; the ceiling, cornice, and entablature have been ornamented with stencil work, and the whole picked out in varied colours to harmonise with the style of architecture. The cost of the works, which will amount to over 500*l.*, will be met by a subscription from the seat-holders. The decorations and repairs have been carried out under the superintendence of Mr. A. C. Morton, architect, London. The contract was taken by Mr. A. Clement, Clapham; and the decorations have been done by Mr. H. Mestwerdt, Brixton.

Christ Church, Lower Clapton.—This church, the first stone of which was laid on the 30th ult., is rectangular, and comprises a nave 90 ft. by 30 ft., by 64 ft. high to the ridge; aisles, 12 ft. wide; chancel, 40 ft. by 25 ft., by 56 ft. high; vestry (north bay of chancel) and organ-chamber (south bay), each 26 ft. by 16 ft.; and narthex, at west end, 30 ft. by 8 ft. In addition to the double entrance at the narthex, there is a north porch and a vestry porch. The nave is separated from the aisles by an arcade of five arches, springing from Hollington stone shafts and Portland caps and bases; the shafts, caps, and bases to the chancel arcade being all of Portland. The aisle windows are small single lights; but in the clearstory is a range, on each side, of ten two-light windows. Over the narthex is a rose-window 17 ft. diameter, the chancel having a five-light window over the reredos, and two two-light windows at the side. On the south of the sanctuary is a sedilia of three seats, with marble shafts, traceried heads, shields with armorial bearings of London and Canterbury, &c. The materials are of brick and stone, coloured brick bands externally, and white, red, and black bricks internally, in bands, arches, devices, &c., the decorations being numerous and elaborate. The roof is open framed, stained and varnished. The nave seats are of deal, varnished, and the stalls to chancel of oak, polished. The pulpit will be of stone, and the font of stone and marble. The architect is Mr. Wigginton; and the builders are Messrs. Axford & Whillier. The style is fourteenth-century Gothic; the accommodation for about 700; and the cost, 5,565*l.* There is to be no tower or spire, but provision for two large bells is made in a bell-cote over the chancel arch.

Christ Church, South Hackney.—The architect of this church, recently mentioned in our pages, writes:—"Instead of 'Portland and Bisham' stone for the exterior, it should have been Hollington, with Bath for the tracery of the windows; and, internally, it should have been Portland for shafts, caps, and bases, to nave arcade, and Bath for corbels to principals of roofs and sedilia. The tower and spire will be of brick and stone, instead of 'Bisham' stone (evidently a *corruption* of *Brick and*), the stone being from the white measures of the Hollington quarries. This stone (largely used by me in Staffordshire, &c.) I introduced into London in

1863, and, owing to its excellent weathering qualities and its great strength, the demand for it has become considerable. In your allusions to the architectural features of the South Hackney churches, you surely forget those of the parish church, built by Mr. Hakewell (illustrations of which find a place in your 'Buildings and Monuments,'—a continuation of which work would be acceptable), and of which you have before spoken well. Notwithstanding the difficulties attending the site of Christ Church, I trust your verdict upon it at its consecration will be different to that recorded on the 27th ult. upon its neighbouring edifices."

Hampstead.—Sir T. Maryon Wilson, bart., the lord of the manor of Hampstead, has given a site for a new church about 300 yards beyond the Swiss Cottage, on the Finchley-road. It will be dedicated to the Holy Trinity.

DERBY AND ITS BUILDING TRADE.

As an old county town, Derby displays no mean share of the art of the builder and the cunning of the architect. A great deal of its modern progress may be attributed to its being chosen as the depôt of the Midland Railway Company. The company may be said to have been the chief projectors of St. Andrew's new church, which was, a few years ago, built, from designs by Mr. Scott, at a cost of about 12,000*l.* The convenient hotel which bears the company's name and the railway station, 1,050 ft. in length, all show forth the results of the formation of such companies. In addition to the station, the workshops, buildings, &c. (some of which are 200 ft. in length), are numerous. The company's engine-house is a sixteen-sided polygon building, 134 ft. across, with a conical roof, and is in every way adapted to the vast locomotive power it covers. The London and North-Western, it may be stated, is just now engaged in building a large goods station, in order to more efficiently provide for its traffic.

In the town itself several buildings for business purposes are just now being erected, which show a considerable improvement both in style and finish on those which still survive the march of progress around. They are chiefly shops, and are built of brick, with stone carvings, which give them a clean and somewhat picturesque appearance. Amongst its more recent erections may be mentioned the new market-hall of 1864 and the town-hall, which was restored in 1842 with a rustic base, carvings in relief, and clock tower.

As to church architecture, the town is by no means despisable. The Church of All Saints, the tower of which owes its date to the reign of Henry VII., is noble. It is built in a rich florid Gothic style, with pinnacles and buttresses, and possesses a very striking appearance. The St. Alkmund's New Church has also a spire, 205 ft. in height; as have also the St. Andrew's and the St. Mary's Roman Catholic Church. Derby has its county asylum; its large and commodious infirmary, established so long ago as 1806; its county prison; its mechanics' institute; and its Arboretum, all of which have special claims.

Mr. Bass, M.P. for Derby, who recently purchased and presented to that town a recreation ground, at a cost of 5,000*l.*, has announced his intention of providing, at his own expense, free public baths. It is referred to the local Estates Committee to obtain plans and tenders for the construction of the baths.

"ON FORCE AND MOTION."

SIR,—Your correspondent, Mr. J. Kipling, says there can be no motion without force, but *I* say there can be no force without motion. If this be true, what becomes of his argument? M. D. A.

SURVEY OF AYLESBURY.

SIR,—A short time since an advertisement was inserted in your columns for tenders for a survey and map of Aylesbury; and, as no official notification has been sent on the matter, perhaps it may interest some competitors to know that a tender of 187*l.* 10*s.* has been accepted. As, to my own knowledge, this is not the lowest by some two or three at least, I should like to call the attention of your readers to it. I think architectural competitions are unfair enough at times, but there is a slight excuse where *taste* is involved; but I think such proceedings as these, viz., to invite tenders for a *survey*, and then leave the competitors in entire ignorance of the matter of the decision, and select a tender without regard at all to lower competitors, is, to use a common phrase, rather a "shady" proceeding.

If the Aylesbury Local Board, or any one else, has a preference for a particular surveyor, it seems somewhat out of course to put several others to the trouble and expense of giving an estimate for no purpose. C. E.

STAIN FOR FLOORS.

SIR,—Can any of your readers oblige me by informing me of the best permanent stain for the margins of bedroom or other boarded floors? I have never found in my experience any method of staining floors which was not speedily disfigured by the traffic to which they are ordinarily subject. If any one else has been more fortunate, I should be grateful for his assistance and advice. E. I. B.

TREATMENT OF BUILDERS.

SIR,—I shall be much obliged if you will inform me in the *Builder*, if I can make any demand of the trustees of the Primitive Chapel here (Whitstable). They had advertised for tenders, in our local paper, for alterations and building a new gallery, not reserving themselves any right of rejecting any tender. Four estimates were sent in, and the lowest man would not accept it, as he had a mistake of 10*l.* in his estimate, mine was the second tender. In a few days after I received an invitation to tender for it again, with a small addition of extra work to the extent of 10*l.* I wrote then, declining to send another; when the principal called on me, wishing me to alter my decision, and send in again, and they would keep it open until the following Wednesday; which I did, and mine was the lowest tender; but still they gave the work to the highest: so I should feel obliged to you for the information, as I consider I am very badly treated. I should not have thought anything of it if they had reserved the right of rejecting any tender.

J. LAWSON, Jun.

*** If the circumstances be as stated, our correspondent would doubtless be able to recover his expenses.

YOUR LIFE: OBSCURE.

SIR,—Long usage has made us familiar with a ridiculous sentence. *Literati*, presenting a biography of somebody, announce to the world that the life of him is just out; the Life of Julius Cæsar is only 7*s.* 6*d.*; penny periodicals inform "Young Gentlemen of Great Britain," that on purchasing the *Life* of Jonathan Wild they will be presented with the Life of Jack Sheppard; or that Oliver Cromwell's can be had in parts. Surely, if we wish for the biography of a man deceased, we do not desire to take his *life*. R. T.

WASTWATER.

BLACK was its face with depth; the fitful winds,
That fain would kiss its sulleness away,
Withdrew rebuffed; and somehow I was 'ware
Of phantom shapes that rose above with sobs,
Exhaled, and sank again. Such vision mine,
As at day's close I came, sudden at end
Of an o'er-arching grove, upon my quest,
The gloomy mere. The arid Screes, whose steeps
Rise sheer above, whereon no herbage grows,
Nor foot can stand, reverberate the noise
Of luckless stones that plunge and seek their doom.
Yon lonely oarsman, like a spectre, dips,
And cleaves a trackless way. O'er level moss,
Morass, and long dank grass, the mountain cones,
Like giant warders at the head, do keep
The passes of the land, to human foot
Forbidden under peril, where abides
Some dreaded Genius hateful of our race.
The lurid radiance of the setting sun
Unwelcome gleams on these uplifted peaks,
Whose sides are dusk, and whose ravines are dark.
Never saw I a natural aspect
So menacing and stern. It surely hides
Some untold horror. . . . .—I know it now;
It is that ominous and forbidding tract
Through which Childe Roland to the Dark Tower came.*

JAMES HIBBERT.

CHURCH-BUILDING NEWS.

Worcester.—St. Andrew's Church will be re-opened during the second week of September. The funds collected for its restoration being insufficient to complete the whole, a portion only of the work has been carried out. The south chapel has been rebuilt in the style of the fifteenth century. It has a moulded plinth, two two-light Perpendicular traceried windows, a doorway having a four-centered arch, the outer mouldings formed into a square, and the spandrels filled in with tracery. At the termination of the labels are two carved heads. The door is of oak, with tracery and ornamental iron hinges. A pierced quatrefoiled parapet extends along the whole south façade of the chapel, and at the western end is a buttress with a detached pinnacle rising from the weather-table. The upper portion of the buttress, which rises above the pierced parapet, is formed into an octagon, and terminates with a crocketed pinnacle. A new roof, having oak ribs and carved bosses, has been substituted for the old decayed one. The north chapel and north aisle have been rebuilt in the same style, and the old oak roofs restored. The south chapel is now lighted by means of two four-light Perpendicular traceried windows, and the north aisle by means of four two-light windows, alternating one with the other, without cusping to the tracery. Those without tracery are taken from the remains of an old example in the church. New floors have been laid to the south chapel, and also to the north chapel and aisle, and the passage to the latter paved with Godwin's encaustic tiles. The work has been done by Mr. Warner, builder, under the superintendence of Mr. Hopkins, architect. The restoration of the chancel, the nave, and tower, and the south aisle, and the new fittings to the whole of the church, still remain to be done, and the committee are only waiting for means to proceed still further with the restoration.

Bolton.—The new church of St. Bartholomew, Westhoughton, which has been re-erected by Mr. John Seddon, at a cost of about 6,000*l.*, has been consecrated by the Bishop of Manchester. The building has been designed by Messrs. Cunliffe & Freeman, of Bolton, and is capable of accommodating 831 persons, the east window, by Messrs. Clayton & Bell, of London, has been erected by the parishioners in commemoration of the liberality of Mr. Seddon. Its cost was about 300*l.* A peal of bells has been presented to the church by Mr. R. Haddock, one of the wardens.

Swanscomb.—A vestry meeting has been held to consider the question of enlarging and restoring the parish church. The rector occupied the chair. The chairman said the amount required was about 1,000*l.*, but the subscriptions already gathered in were only 92*l.* 0*s.* 1*d.* The expense of repairing the chancel would have to be borne by himself, and would amount to 200*l.* The church was one of the oldest in the kingdom, the main body having been built in 1150, and the steeple probably two centuries earlier. It was four hundred years since the last restoration of the church, and it would be a great disgrace if things continued in the state in which they now were. A resolution was passed unanimously that the work be done.

Alston.—The new church which has for some months been in course of erection at Alston, has been opened for divine service by the Bishop of Durham. The edifice is not yet complete, the gas and warming apparatus being still required, as well as some minor matters in the interior ornamentation. The most important deficiency is the tower. As yet this has only been raised a height of 30 ft., but the plan is for it to be 55 ft. high, and topped with a spire of 60 ft. These arrangements will be carried out as funds allow. The church occupies almost the same site as the old one, and while the workmen were engaged in digging the foundation they discovered the foundation of the original church that was erected in the eleventh century. The upturned stones bore traces of carving and decoration. The present church is built in the style of the thirteenth century, and consists of a nave, south aisle, chancel, and transept, the latter forming the vestry and organ-chamber. White sandstone has been used in all the walls and partitions. The columns dividing the aisle from the nave are of polished granite from the well-known quarries at Shap; and the pillars in the chancel arch and in the screen dividing the chancel from the transept are of Frosterey marble, from Weardale. The building is well lighted on all sides. The oriel window is a four-light, with some simple tracery above, and in the west is a large circular subdivided window. Side lights are in the chancel, and in the nave are large two-light windows, a clearstory being above at both sides. All the windows are of plain glass, except one. This is a two-light stained glass window, one compartment of which represents the Last Supper, and the other the Baptism of Jesus in the Jordan by John the Baptist. An ornamental screen of wrought iron is intended to divide the transept from the chancel, and on this will be fixed a system of gas-burners, while the same will be done at the other side. The rest of the church will be lighted by means of three gas stars in the nave, and two in the aisle; and the apparatus will be provided by Messrs. Walker & Emley, of Newcastle-on-Tyne. The warming apparatus will be supplied by Messrs. Combe & Son, of Glasgow. The sittings, which will accommodate about 420, are of varnished deal, and were supplied by the contractors, Messrs. C. & J. Armstrong, of Carlisle, builders, by whom the whole of the work has been executed, under the immediate superintendence of Mr. J. W. Walton, of London, architect. Mr. Maby, of London, sculptor, carved the pulpit and font. The whole cost of the church, including the tower and spire, is estimated at nearly 5,000*l.* One-tenth of the whole sum up to 5,000*l.* expended is to be defrayed by Mr. Thomas Wilson, of Shotley, and the sum now subscribed is about 2,800*l.* This sum will require to be increased by 800*l.* before the expense of the church, irrespective of the

* "Childe Roland to the Dark Tower came;
His word was still ———."
Fragment in King Lear.
See Robert Browning's remarkable poem upon it.